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A SURVEY OF POLYCHLORINATED BIPHENYLS IN AMBIENT AIR IN ONTARIO

PHASE II - VOLUME II

METEOROLOGICAL CORRELATION FOR A 1979 SURVEY OF POLYCHLORINATED BIPHENYLS

Final Report

Report ARB- 25-81-ARSP

Ontario
Ministry of the Environment

The Honourable
Keith C. Norton, Q.C.,
Minister

Gérard J. M. Raymond
Deputy Minister

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MOE Report-ARB- 25-81-ARSP

Prepared by

International Environmental Consultants

for

Ontario Ministry of Environment
Air Resources Branch
880 Bay Street, Toronto

METEOROLOGICAL CORRELATIONS FOR A SURVEY OF POLYCHLORINATED BIPHENYLS IN THE PROVINCE OF ONTARIO

31 MARCH 1981

Prepared for:

ONTARIO MINISTRY OF THE ENVIRONMENT
AIR RESOURCES BRANCH

Approved By:

K. L. Murphy, Ph.D., P. Eng.
Vice-President, Technical Services

Prepared By:

J.L. Robertson, P.Eng.
Project Manager

A. Yates, B. Sc.
Project Scientist

This report is part of a series of reports published by the Ministry of the Environment, Air Resources Branch - on the development of techniques for collection, detection and determination of Polychlorinated Biphenyls in ambient air and results of surveys performed in Ontario in the periods of Sept.-October 1979 and June 1981. The reports of this series are:

ARB-TDA-08-80-Phase I	-	Development of Laboratory and Field Procedures
ARB-011-81-ARSP-Phase II	-	Volume I; Sampling Site Selection and Analytical Procedures.
ARB-025-81-ARSP-Phase II	-	Volume II; Meteorological Correlation for the 1979 Survey of Polychlorinated Biphenyls in Air in Ontario.
ARB-026-81-ARSP-Phase III	-	1980 Survey of Polychlorinated Biphenyls in Air in Ontario.

This series of reports should be considered as a unit, and the individual members of the series should be evaluated in concert with the other members. This situation arises since this work was developmental in nature and the reports present a chronological picture of the work done over period of time on the sampling, sample processing and analytical procedures. The Phase III Report describes the current state-of-the-art for PCB sampling and analysis as developed by MOE Scientists.

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DISCLAIMER

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PROJECT: 2098.1

DATE: 31 MARCH 1981

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ONTARIO MINISTRY OF THE ENVIRONMENT

TABLE OF CONTENTS

		PAGE NO.
1.0	SUMMARY	1
2.0	INTRODUCTION	2
3.0	DATA ACQUISITION AND REDUCTION	3
3.1	Meteorological Data	3
3.2	PCB Data	6
3.3	Data Reduction	6
3.4	Statistical Calculations	7
4.0	RESULTS AND DISCUSSION	10
4.1	PCB Data	10
4.2	Correlations	10
4.2.1	Correlations of PCB Concentrations With Temperature	13
4.2.2	Correlations Between PCB Concentrations and Wind Direction and Speed	13
5.0	CONCLUSIONS	29

APPENDIX 1 - PCB DATA
APPENDIX 2 - COMPUTER PROGRAM LISTING
APPENDIX 3 - COMPUTER PROGRAM OUTPUT
APPENDIX 4 - MAPS OF DAILY PCB CONCENTRATIONS
APPENDIX 5 - PLOTS OF SIGNIFICANT CORRELATIONS

1.0 SUMMARY

IEC International Environmental Consultants Ltd. was retained by the Ontario Ministry of the Environment to operate samplers at six sites in the Toronto area during the 28 day province wide survey of PCB's conducted in September - October, 1979. IEC was also retained to conduct data analysis for all 25 sites sampled in the survey using PCB concentration data supplied by the Ministry and meteorologic data obtained from the Ministry and Atmospheric Environment Service of Environment Canada.

The purpose of the survey was to provide data on ambient PCB levels at the 25 sites which were selected by MOE and to correlate the measured PCB concentrations with meteorological conditions during the sampling period.

The data reduction and analysis were intended to demonstrate whether any significant correlations between PCB concentration and the meteorological factors wind direction, wind speed, and air temperature existed.

Linear regression correlations between PCB concentration and meteorological parameters were performed. Few significant correlations between PCB concentration and temperature or standard deviation of temperature were found. Sixty-five statistically significant correlations between PCB concentration and wind direction were found, while thirty-four significant correlations between PCB concentration and wind speed were obtained.

Further examination of eighteen of the most significant correlations showed that while all were statistically significant, the data were skewed such that the correlations were based on relatively few data points. Consequently, the correlations should be interpreted as trends.

2.0 INTRODUCTION

In June 1979 the Ontario Ministry of the Environment invited proposals for a "Survey of Polychlorinated Biphenyls in Ambient Air in the Province of Ontario". The intent of the program was to obtain baseline data on ambient PCB concentrations in a summer survey and in a winter survey at 25 stations in Ontario and to evaluate the significance of correlations between PCB concentrations and meteorologic data at each station. In addition to this, there was to be an intensive survey in the Mississauga area during a test burn of PCB-containing oil at the St. Lawrence Cement Plant.

The program was subsequently reduced to one province-wide survey undertaken in September-October, 1979. This report presents the results of the evaluation of PCB concentration and meteorologic data for correlations, along with all computer output for the September-October, 1979 survey. Raw meteorologic data for each station have been submitted in a separate report.

3.0 DATA ACQUISITION AND REDUCTION

3.1 Meteorological Data

The meteorological data used in the regression analyses were obtained from the Ontario Ministry of the Environment, the Atmospheric Environment Service of Environment Canada and Ontario Hydro. Meteorologic data were obtained from the stations listed in Table 1. As there were 25 PCB sampling stations and only 13 meteorologic stations, data from one meteorologic station frequently was used at more than one PCB sampling station for purposes of correlation as indicated in Table 2.

TABLE 1: METEOROLOGICAL STATIONS

Station Name		Station Address
1.	MOE-14016	Opposite Lambton generating station, Hwy. 40, Courtright
2.	MOE-12032	Windsor (not used - temperature data not available)
3.	MOE-12034	C.P. Tower, Riverside Drive, Windsor
4.	AES-LOND	London Airport (London-A)
5.	MOE-29026	Brampton/Woodward Avenue, Hamilton
6.	MOE-27049	Niagara Falls (Temp. from AES-St. Catherines "A")
7.	MOE-35033	Evans/Arnold Ave. Etobicoke
8.	MOE-33003	Lawrence/Kennedy Ave. Scarborough
9.	MOE-45025	Ritson Rd./Olive Ave. Oshawa (Temp. from AES, Oshawa Water Pollution Control Plant).
10.	AES-KING	Kingston "A", Kingston Airport
11.	MOE-77025	CKNC TV Tower, Frood Road, Sudbury
12.	AES-TBAY	Thunder Bay "A", Thunder Bay Airport
13.	HYD-NANT	Ontario Hydro, Nanticoke Generating Station

The data consisted of hourly readings of temperature, wind speed and wind direction. Where meteorological data was missing at a particular location the missing data were obtained from another source. Originally, the MOE station at Allanburg was to be used rather than the one at Niagara Falls. However, instrument failures resulted in an unacceptably high percentage of missing data (>50%). Temperature data were not available at the Niagara Falls location, but were obtained from the AES St. Catherine's "A" Station. Similarly, the temperature data for MOE-45025 (Oshawa) were obtained from AES. These stations provide only daily temperature maxima and minima, therefore an average, calculated for each day, was used.

Wind direction data are coded by AES into 36 classes of 10 degrees each. Thus the actual degree reading is approximately equal to ten times the class number. Because the classes used by AES, and by IEC in the preparation of this report, were different (ie. 36 classes of 10 degrees by AES versus 16 classes of 22.5 degrees by IEC) one degree was subtracted from the reading obtained by multiplying AES classification by 10. This prevented any intersection of class limits and allowed an immediate verification that wind direction data were originally coded.

The formula used to translate classes back to degrees was:

$$\text{Direction} = (\text{CODE} \times 10) - 1$$

This gave a reading in degrees which was approximately centered in the code class defined by AES. MOE and Ontario Hydro data were not coded.

Wind speed values were given in nautical miles per hour in the AES Data. A conversion factor of 1.852 (CRC, 1973) was used to convert the data to units of km/hour. MOE and Ontario Hydro data were available in metric units.

Copies of raw meteorological data output are provided in a separate volume of this report.

TABLE 2: LOCATION OF PCB SAMPLING SITES

PCB Station	Location	Met Station
BUR-S-U1	Burlington, Urban	MOE - 29026
HAM-S-I1	Hamilton, Industrial	MOE - 29026
HAM-S-I2	Hamilton, Industrial	MOE - 29026
HAM-S-U1	Hamilton, Urban	MOE - 29026
HAM-S-U2	Hamilton, Urban	MOE - 29021
KIN-S-U1	Kingston, Urban	AES - KING
LON-S-U1	London, Urban	AES - LOND
MIS-S-U1	Mississauga, Urban	MOE - 35033
MIS-S-U2	Mississauga, Urban	MOE - 35033
MIS-S-U3	Mississauga, Urban	MOE - 35033
MIS-S-U4	Mississauga, Urban	MOE - 35033
MOR-S-U1	Mooretown, Urban	MOE - 12034
NAN-S-R1	Nanticoke, Rural	HYD - NANT
NAN-S-R2	Nanticoke, Rural	HYD - NANT
OSH-S-U1	Oshawa, Urban	MOE - 45025
STC-S-R1	St. Catherines, Rural	MOE - 27049
SAR-S-I1	Sarnia, Industrial	MOE - 14016
SAR-S-U1	Sarnia, Urban	MOE - 14016
SUD-S-S1	Sudbury, Suburban	MOE - 77025
SUD-S-R1	Sudbury, Rural	MOE - 77025
THU-S-R1	Thunder Bay, Rural	AES - TBAY
THU-S-U1	Thunder Bay, Urban	AES - TBAY
TOR-S-S1	Toronto, Suburban	MOE - 33003
TOR-S-U1	Toronto, Urban	MOE - 33003
WIN-S-U1	Windsor, Urban	MOE - 12034

Note: U = Urban, I = Industrial, S = Suburban, R = Rural

3.2 PCB Data

Blank-corrected PCB data for each site were provided to IEC by MOE. No modification or editing was performed. PCB station names and locations are given in Table 2.

PCB samplers were operated on a 24 hour basis, but the time at which sampling started and stopped varied slightly from day to day at each station and varied substantially between stations. The average start time for each station was determined from the field data sheets and input to the computer along with the PCB data. This was done to achieve as close a match between sampling periods (of 24 hours) and meteorological data as possible.

While most stations started the study period on the 27th of September, two did not. These were BUR-S-U1, which started on the 26th of September, and KIN-S-U1, which started on the 29th of September. The meteorological data files used with these stations were modified to give correct results with these stations.

Listings of the PCB data files used are provided in Appendix 1.

3.3 Data Reduction

A computer program was developed to perform the data analysis. It had provisions for entering and modifying PCB and meteorological data, and performed the correlation analysis between any PCB sampling station and any meteorological station. A complete listing of the program, written in BASIC, is provided in Appendix 2.

Linear correlation analysis was used to calculate correlation coefficients. MOE uses similiar programs to correlate such parameters as suspended particulate matter and wind direction.

3.4 Statistical Calculations

The calculation of means, standard deviation, linear regression constants and correlation coefficients were performed using standard formulae. They are given below:

A. Mean

$$\text{Mean} = \frac{\Sigma x_i}{n}$$

x_i - ith data point
n - total number of data points

B. Standard Deviation

$$= \sqrt{\frac{\Sigma x_i^2 - n(\text{Mean})^2}{n-1}}$$

Source - Barrowdale, Roberts, Ehle, "Elementary Computer Applications", Toronto, 1974.

C. Correlation Coefficient

$$r = \frac{\Sigma x_i y_i - \frac{1}{n} \Sigma x_i \Sigma y_i}{\sqrt{(\Sigma x_i^2 - \frac{1}{n} (\Sigma x_i)^2) \times (\Sigma y_i^2 - \frac{1}{n} (\Sigma y_i)^2)}}$$

Source - Barrowdale, Roberts, Ehle, ibid.

D. Linear Regression Constants

$$\text{Slope} = \frac{n\Sigma xy - \Sigma x \Sigma y}{n\Sigma x^2 - (\Sigma x)^2}$$

Source - Barrowdale, Roberts, Ehle, ibid.

The t-test was used to evaluate the significance of the correlation coefficients calculated for each data set. The test was based on the null hypothesis that the calculated regression line was not significantly different from a line of zero slope (representing the mean value of all "y" values).

The formula used to calculate the value of the t-statistic is as follows:

$$t = \frac{r\sqrt{n - 2}}{1 - r^2}$$

Where: r = correlation coefficient
n = number of data points

Source: Volk, "Applied Statistics for Engineers", Toronto, 1958.

Thus, if a correlation is found to have t-value greater than the tabulated value at the 90% confidence limit but less than that for the 95% confidence limit then the null hypothesis is false at the 90% confidence level, but remains true at the 95% level and the correlation is therefore significant at the 90%, but not at the 95% level.

There are two possible errors which may result from any statistical test of this type, known as Type 1 and Type 2. Type 1 are those in which the null hypothesis is rejected (ie said to be false) when it is not, while Type 2 is the reverse, that is, it is said to be true when in fact it is false.

Since these are mirror images of each other, it follows that attempting to eliminate the possibility of a Type 1 error may result in a Type 2 error. The way to avoid this is to increase the sample size.

Statisticians commonly state that a 90% significance level is the minimum level for a correlation to be accepted as significant, while the 95 and 99% levels are better, and tend to balance Type 1 and Type 2 errors the best, as well. Consequently, these three levels have been used in the assessment of the significance of the correlations between PCB concentrations and meteorologic data.

The correlations to be performed were:

1) PCB concentration vs wind direction class
2) PCB concentration vs wind speed
3) PCB concentration vs ambient temperature
4) PCB concentration vs standard deviation of daily temperature

The approach used in the program was as follows:

1) load PCB data file for one station and sampling start time
2) load corresponding meteorological data file
3) calculate daily average temperatures, with "day" starting at start time for the PCB station
4) calculate standard deviation of daily temperatures from daily mean temperatures
5) classify wind direction into 16 classes
6) classify wind speeds into five classes
7) normalize absolute counts (number of hours per wind direction) obtained in (5) and (6) above to % time
8) perform linear regression analysis as outlined above
9) output results in tabular form
10) output wind direction results in histogram form.

Output from all stations is provided in Appendix 3 of this report. The program requires approximately 40 Kbytes of memory to run, divided between program storage, 17 Kbytes and data storage, 23 Kbytes.

4.0 RESULTS AND DISCUSSION

4.1 PCB Data

The means, standard deviations and maximum and minimum readings for the raw PCB data provided by MOE for all stations are shown in Table 3. The highest one day PCB concentration of 74 ng/m^3 was found in Hamilton. The highest average reading of 9.8 ng/m^3 was obtained in downtown Toronto. The lowest one-day concentration of 36 ng/m^3 was found in Kingston, while the lowest average of 3.8 ng/m^3 was found at the rural site in the Thunder Bay area. All the measured daily concentrations are below the Ministry guidelines of 150 ng/m^3.

In general, the standard deviation for each station was high, indicating a large day-to-day variability in ambient PCB concentration. While there was only one station in which standard deviation exceeded the mean, in most cases the standard deviation was at least 66% of the mean.

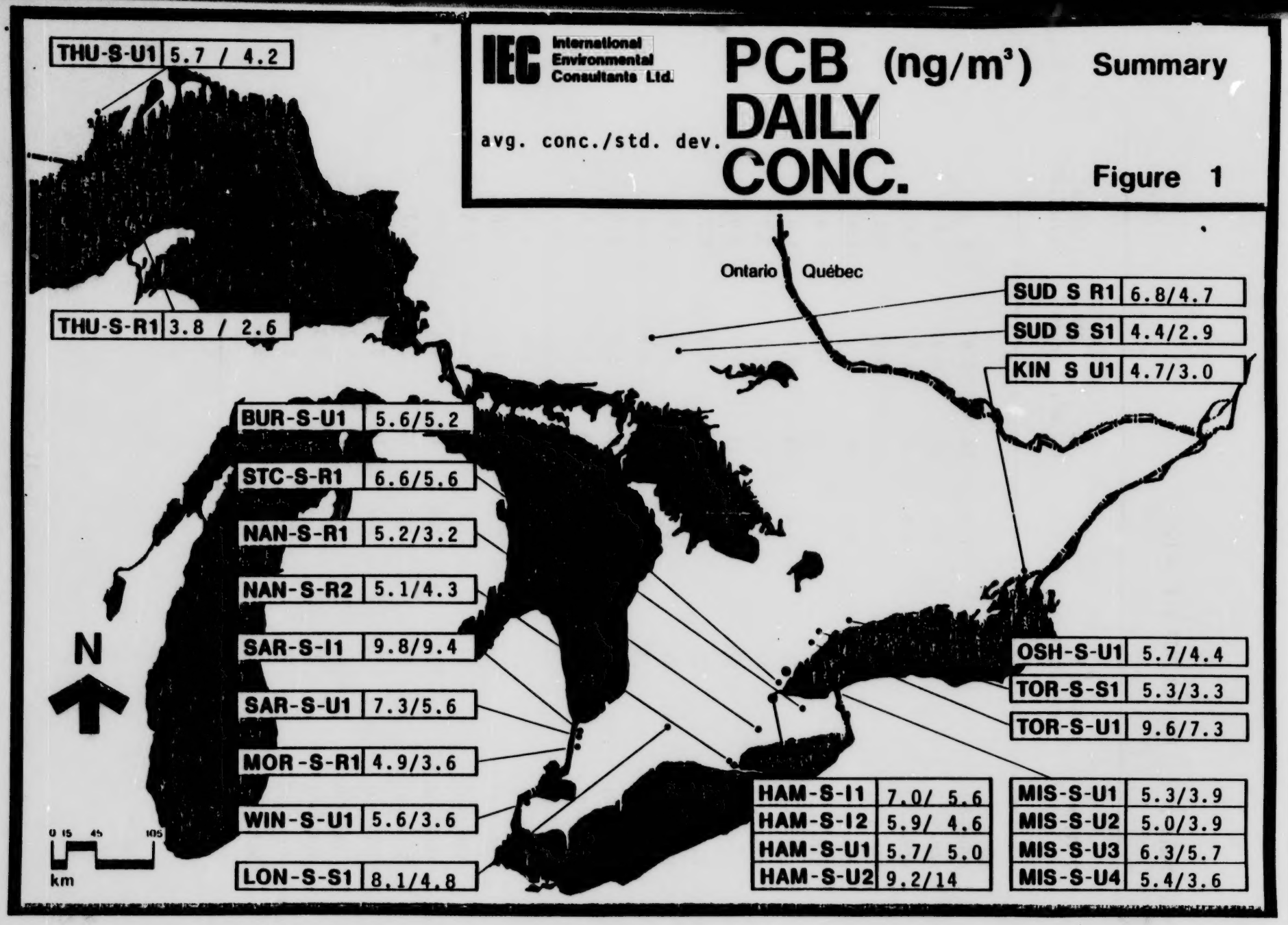
A map of Ontario indicating the 25 sampling sites is presented in Figure 1. The mean and standard deviation of the PCB concentrations at each site during the study are shown. Daily concentrations for all stations are shown on similiar maps in Appendix 4.

4.2 Correlations

The use of a simple linear regression analysis to determine possible relationships between the PCB concentration and the various meteorological parameters is not a statistically rigorous treatment of the data. To be accurate, multiple correlation analysis incorporating all of the meteorological parameters in the study would have to be performed. This would ensure that there are no internal correlations, for instance, between wind direction and wind speed. If this were the case, then a strictly rigorous treatment of the problem would demand that the statistically less significant variable be discarded and the regression re-run. Meteorologists commonly assume that there is no significant relation between the various parameters on a large scale over a long period of time. A 28 day time

TABLE 3: RAW PCB DATA STATISTICS

STATION	# VALID OBSERVATIONS	MIN (ng/m^3)	MAX (ng/m^3)	MEAN (ng/m^3)	STANDARD DEVIATION
BUR-S-UI	25	1.0	24	5.6	5.2
HAM-S-11	26	1.1	22	6.9	5.6
HAM-S-12	25	1.0	18	5.9	4.6
HAM-S-UI	25	1.0	22	5.7	5.0
HAM-S-U2	26	1.2	74	9.2	13.9
KIN-S-UI	24	0.4	10	4.7	3.0
LON-S-UI	18	0.4	18	8.1	4.8
MIS-S-UI	24	0.9	15	5.3	3.9
MIS-S-U2	25	0.8	15	4.9	3.9
MIS-S-U3	25	0.6	21	6.3	5.7
MIS-S-U4	27	0.9	15	5.3	3.6
MOR-S-U1	26	0.6	16	4.8	3.6
NAN-S-R1	27	1.0	14	5.2	3.7
NAN-S-R2	27	0.9	18	5.1	4.3
OSH-S-U1	26	1.0	14	5.7	4.4
STC-S-RI	26	1.6	23	6.6	5.6
SAR-S-II	24	0.6	21	7.3	5.6
SAR-S-UI	24	1.8	47	9.8	9.4
SUD-S-SI	24	1.0	12	4.4	2.9
SUD-S-R1	26	1.7	17	6.8	4.7
THU-S-R1	26	0.7	10	3.8	2.6
THU-S-UI	27	1.3	13	5.7	4.2
TOR-S-SI	23	1.6	15	5.3	3.3
TOR-S-UI	25	1.9	32	9.6	7.3
WIN-S-UI	27	1.5	16	5.6	3.6


IEC International Environmental Consultants Ltd.
PCB (ng/m³) Summary
avg. conc./std. dev.
DAILY CONC.
Figure 1
Ontario
Québec
THU-S-U1 5.7 / 4.2
THU-S-R1 3.8 / 2.6
BUR-S-U1 5.6/5.2
STC-S-R1 6.6/5.6
NAN-S-R1 5.2/3.2
NAN-S-R2 5.1/4.3
SAR-S-I1 9.8/9.4
SAR-S-U1 7.3/5.6
MOR-S-R1 4.9/3.6
WIN-S-U1 5.6/3.6
LON-S-S1 8.1/4.8
SUD S R1 6.8/4.7
SUD S S1 4.4/2.9
KIN S U1 4.7/3.0
OSH-S-U1 5.7/4.4
TOR-S-S1 5.3/3.3
TOR-S-U1 9.6/7.3
HAM-S-I1 7.0/ 5.6
HAM-S-I2 5.9/ 4.6
HAM-S-U1 5.7/ 5.0
HAM-S-U2 9.2/14
MIS-S-U1 5.3/3.9
MIS-S-U2 5.0/3.9
MIS-S-U3 6.3/5.7
MIS-S-U4 5.4/3.6
N
0 15 45 105
km

period should minimize these problems as well as provide an adequate data base to begin to define ambient and background levels of PCB's in the Province of Ontario.

4.2.1 Correlations Between PCB Concentration and Temperature

A total of five significant correlations with average daily temperature were found; only two of these were significant at the 95% level, while the others were significant at the 90% level. Table 4 summarized all the calculated correlation coefficients.

Correlations with standard deviation of daily temperature were performed to provide a rough estimate of the behaviour of PCB's contained in the atmosphere under varying conditions of atmospheric stability. It was anticipated that few significant correlations would be found and that those that did occur would have negative correlation coefficients. Increasing standard deviation of temperature would indicate less atmospheric stability, and thus greater mixing between boundary layer and upper atmosphere, with resultant dilution of PCB concentration. The calculated correlation coefficient are given in Table 4. Of the three significant correlations found only one had the expected negative correlation coefficient.

4.2.2 Correlations Between PCB Concentration and Wind Direction and Speed

The calculated correlation coefficients for PCB concentration with wind direction classes are presented in Table 5a. Those correlations which are statistically significant are presented in Table 5b. A summary of the number of statistically significant correlations by wind direction and level of significance is presented in Table 6.

The values of the t statistic necessary for the correlations to be significant at the 90%, 95% and 99% levels are given in Table 7. In this case, a significance of 90% means that in one out of 10 cases, a correlation rejected as insignificant will actually be significant. (ie. a Type 2 error).

TABLE 4: CORRELATION COEFFICIENTS - PCB CONCENTRATION vs TEMPERATURE

STATION	vs AVERAGE TEMPERATURE	vs STD. DEV. TEMPERATURE
BUR-S-U1	0.0515	-0.0711
HAM-S-I1	0.0662	0.0593
HAM-S-I2	0.2656	2.1025
HAM-S-U1	0.2065	0.0185
HAM-S-U2	0.3026	-0.1843
KIN-S-U1	0.0604	-0.0784
LON-S-U1	0.4046[1]	-0.1239
MIS-S-U1	0.3772[1]	0.0824
MIS-S-U2	0.3819[1]	0.1799
MIS-S-U3	0.4115[2]	-0.0368
MIS-S-U4	0.0561	0.4323[2]
MOR-S-U1	0.0620	-0.1325
NAN-S-R1	0.2734	0.0477
NAN-S-R2	0.2593	0.3069
OSH-S-U1	0.3630	0.0234
STC-S-R1	0.1142	-0.4103[2]
SAR-S-I1	0.4574[2]	-0.0901
SAR-S-U1	0.1983	0.0722
SUD-S-S1	0.0247	0.4341[2]
SUD-S-R1	0.2400	-0.0089
THU-S-R1	0.0257	-0.0043
THU-S-U1	0.3643[1]	0.1211
TOR-S-S1	0.3391	0.0248
TOR-S-U1	0.3218	-0.1867
WIN-S-U1	0.1847	0.0021

NOTES - 1 Significant at 90% level
2 Significant at 95% level

TABLE 5a: CORRELATION COEFFICIENTS - PCB CONCENTRATION vs WIND DIRECTION CLASS

STATION	N	NNW	NW	WNW	W	WSW	SW	SSW
BUR-S-U1	0.2958	-0.3712[1]	-0.1369	0.4324[2]	0.6227[3]	0.8443[3]	-0.0171	-0.0713
HAM-S-I1	0.3160	-0.0727	-0.0482	0.2605	0.1895	0.0785	0.3931[2]	0.0727
HAM-S-I2	0.7321[3]	-0.0010	0.1681	0.5093[3]	0.5299[3]	0.1426	-0.0820	-0.1615
HAM-S-U1	0.7227[3]	-0.1344	0.1613	0.4599[2]	0.5436[3]	0.3327	0.1250	-0.0643
HAM-S-U2	-0.0935	-0.0636	-0.1543	-0.0139	-0.0055	-0.0951	-0.0977	-0.0617
KIN-S-U1	-0.2596	-0.1219	0.1512	-0.2005	0.1367	-0.0708	0.0359	0.1261
LON-S-U1	0.3625	0.2424	0.2488	0.3447	0.1954	0.3767	-0.0370	-0.0106
MIS-S-U1	0.2094	-0.0125	0.0424	0.0008	-0.2945	0.0122	0.1261	0.7306[3]
MIS-S-U2	0.1722	-0.1291	-0.1151	-0.0338	-0.3041	-0.1594	-0.1238	0.5296[3]
MIS-S-U3	0.2654	0.1986	0.2539	0.0018	-0.3110	-0.1617	0.1086	0.5692[3]
MIS-S-U4	0.0261	-0.2145	-0.2132	-0.0110	-0.0629	-0.0466	-0.0662	0.2137
MOR-S-U1	0.0074	-0.1259	0.0522	-0.0446	0.2403	-0.0706	0.0871	0.6312[3]
NAN-S-R1	0.2930	0.1346	0.1011	0.0714	-0.0267	-0.0404	-0.0903	-0.1094
NAN-S-R2	0.1686	0.2673	0.4245[2]	0.3560[1]	0.1329	0.0539	0.0779	0.0091
OSH-S-U1	-0.0339	0.1694	0.1031	0.2262	0.3041	-0.1369	-0.0831	-0.0419
STC-S-R1	0.4671[2]	0.2050	0.0226	0.0108	-0.2817	0.3928[2]	0.4268[2]	0.1035
SAR-S-I1	0.1560	0.6392[3]	0.5541[3]	0.1033	0.1906	-0.1124	-0.0809	0.1460
SAR-S-U1	0.1910	0.6894[3]	0.4827[2]	-0.0768	0.0127	-0.1419	-0.2020	-0.0449
SUD-S-S1	0.3011	0.2631	0.3659[1]	0.2370	0.0455	0.2379	0.0683	-0.2234
SUD-S-R1	-0.1342	-0.0731	-0.0098	-0.0150	-0.2319	-0.0415	-0.2562	-0.2153
THU-S-R1	0.0403	-0.0242	-0.3871[1]	-0.2591	-0.5231[3]	-0.4127[2]	-0.2781	0.0076
THU-S-U1	0.3096	-0.0784	-0.4469[2]	-0.3496[1]	-0.4645[2]	-0.2287	-0.0330	0.2052
TOR-S-S1	0.5794[3]	0.4280[2]	0.3682[1]	-0.0724	-0.0075	0.5205[2]	0.1704	0.2928
TOR-S-U1	0.1983	0.1952	0.4856[2]	0.4377[2]	0.1238	0.3509[1]	-0.0417	0.4360[2]
WIN-S-U1	0.0423	0.0026	0.3828[2]	0.3436[1]	0.6304[3]	0.1538	0.3062	0.2074

STATION	S	SSE	SE	ESE	E	ENE	NE	NNE
BUR-S-U1	0.0287	-0.2513	-0.1657	-0.0449	0.2071	0.0612	-0.0181	-0.0791
HAM-S-I1	0.0844	-0.1929	-0.0904	0.1598	-0.1896	-0.1388	-0.0348	-0.1115
HAM-S-I2	0.0728	-0.1704	-0.3172	0.0062	-0.3012	-0.1304	0.1906	0.0726
HAM-S-U1	0.1082	-0.2781	-0.3650[1]	-0.0412	-0.2122	-0.1047	0.1227	0.0470
HAM-S-U2	-0.1304	0.5364[3]	0.2755	-0.1530	-0.1837	-0.1203	-0.0167	-0.0068
KIN-S-U1	0.1135	0.0436	0.0778	-0.1389	-0.2572	-0.1907	0.2087	-0.2102
LON-S-U1	0.1689	0.0438	-0.2064	-0.0770	-0.2976	-0.3088	0.0429	-0.0840
MIS-S-U1	0.5133[2]	-0.0455	-0.2863	-0.1776	-0.0137	-0.0471	-0.0998	0.0728
MIS-S-U2	0.6121[3]	-0.0003	-0.1503	-0.1216	0.0380	0.2083	-0.0496	0.0023
MIS-S-U3	0.5517[3]	-0.0146	-0.2070	-0.2442	0.0686	0.0133	-0.1703	0.0785
MIS-S-U4	0.3843[2]	-0.0349	-0.1555	-0.2299	0.0039	0.0881	0.1416	0.1702
MOR-S-U1	0.4525[2]	-0.2678	-0.1002	0.0049	-0.2279	-0.1216	-0.0854	-0.0686
NAN-S-R1	0.0519	-0.1448	-0.1309	0.0047	-0.0026	-0.0529	-0.0689	0.1810
NAN-S-R2	0.1301	-0.0829	-0.3787[1]	-0.1546	-0.2362	-0.2168	0.0602	0.1918
OSH-S-U1	-0.3666[1]	0.0138	0.4367[2]	0.0741	0.1455	-0.0038	-0.0182	0.0865
STC-S-R1	0.0291	0.0174	-0.2176	0.0128	-0.2502	-0.0728	0.0045	-0.2394
SAR-S-I1	0.0745	-0.2743	-0.2042	-0.1562	-0.2680	0.0065	-0.1695	0.1347
SAR-S-U1	0.1293	-0.1657	-0.1234	-0.1982	-0.1359	-0.0753	-0.0309	0.3026
SUD-S-S1	-0.3493[1]	-0.2118	-0.1939	-0.0419	-0.1029	-0.1478	0.0441	0.0706
SUD-S-R1	0.1761	0.4312[2]	0.2421	0.0929	0.2845	0.3844[1]	-0.0758	0.0068
THU-S-R1	0.4745[2]	0.3700[1]	0.4168[2]	0.3393[1]	0.1910	0.5284[3]	0.1518	0.3323[1]
THU-S-U1	0.4027[2]	0.2891	0.2172	0.2400	0.0811	0.3364[1]	0.3849[2]	0.2421
TOR-S-S1	0.1021	-0.1051	-0.3156	-0.4361[2]	-0.1958	-0.1848	-0.1761	0.0504
TOR-S-U1	-0.0578	-0.2699	-0.3805[1]	-0.2770	-0.0070	-0.1297	-0.2752	0.0204
WIN-S-U1	0.0054	-0.2850	-0.2889	-0.1810	-0.0753	-0.0729	0.0380	-0.0443

Notes: [1] Significant at 90% level
[2] Significant at 95% level
[3] Significant at 99% level

TABLE 5b: SIGNIFICANT CORRELATIONS - PCB CONCENTRATIONS vs WIND DIRECTION

STATION	N	NNW	NW	WNW	W	WSW	SW	SSW
BUR-S-U1		-0.3712[1]		0.4324[2]	0.6227[3]	0.8448[3]		
HAM-S-I1							0.3931[2]	
HAM-S-I2	0.7321[3]			0.5293[3]	0.5299[3]			
HAM-S-U1	0.7227[3]			0.4599[2]	0.5436[3]			
HAM-S-U2								
KIN-S-U1								
LON-S-U1								
MIS-S-U1								0.7306[3]
MIS-S-U2								0.5298[3]
MIS-S-U3								0.5692[3]
MIS-S-U4								
MOR-S-U1								0.6312[3]
NAN-S-R1								
NAN-S-R2			0.4245[2]	0.3560[1]				
OSH-S-U1								
STC-S-R1	0.4671[2]					0.3928[2]	0.4268[2]	
SAR-S-I1		0.6392[3]	0.5541[3]					
SAR-S-U1		0.6894[3]	0.4827[2]					
SUD-S-S1			0.3659[1]					
SUD-S-R1								
THU-S-R1			-0.3871[1]		-0.5231[3]	-0.4127[2]		
THU-S-U1			-0.4469[2]	-0.3496[1]	-0.4645[2]			
TOR-S-S1	0.5794[3]	0.4280[2]	0.3682[1]			0.5205[2]		
TOR-S-U1			0.4856[2]	0.4377[2]		0.3509[1]		0.4360[2]
WIN-S-U1			0.3828[2]	0.3436[1]	0.6304[3]			

STATION	S	SSE	SE	ESE	E	ENE	NE	NNE
BUR-S-U1								
HAM-S-I1								
HAM-S-I2								
HAM-S-U1			-0.3650[1]					
HAM-S-U2		0.5364[3]						
KIN-S-U1								
LON-S-U1								
MIS-S-U1	0.5133[2]							
MIS-S-U2	0.6121[3]							
MIS-S-U3	0.5517[3]							
MIS-S-U4	0.3843[2]							
MOR-S-U1	0.4525[2]							
NAN-S-R1								
NAN-S-R2			-0.3787[1]					
OSH-S-U1	-0.3666[1]		0.4367[2]					
STC-S-R1								
SAR-S-I1								
SAR-S-U1								
SUD-S-S1	-0.3493[1]							
SUD-S-R1		0.4312[2]				0.3844[1]		
THU-S-R1	-0.4745[2]	0.3700[1]	0.4168[2]	0.3393[1]		0.5284[3]		0.3323[1]
THU-S-U1	0.4027[1]					0.3364[1]	0.3849[2]	
TOR-S-S1				-0.4361[2]				
TOR-S-U1			-0.3805[1]					
WIN-S-U1								

Notes: 1 Significant at 90% level
2 Significant at 95% level
3 Significant at 99% level

TABLE 6: SIGNIFICANT CORRELATIONS - PCB CONCENTRATION vs WIND DIRECTION

SIGNIFICANCE (%)	WIND DIRECTION																
	N	NNW	NW	WNW	W	WSW	SW	SSW	S	SSE	SE	ESE	E	ENE	NE	NNE	TOTAL
90	-	1	3	3	-	1	-	-	2	1	3	1	-	2	-	1	18
95	1	1	5	3	1	3	2	-	5	1	2	1	-	-	1	-	29
99	3	2	1	1	5	1	-	4	2	1	-	-	-	1	-	-	18
TOTAL	4	4	9	7	6	5	2	4	9	3	5	2	0	3	1	1	65

TABLE 7: ABSOLUTE VALUE OF t-STATISTIC NECESSARY FOR GIVEN SIGNIFICANCE LEVELS

# VALID DAYS	90% SIGNIFICANCE	95% SIGNIFICANCE	99% SIGNIFICANCE
20	1.734	2.181	2.878
21	1.729	2.593	2.861
22	1.725	2.086	2.845
23	1.721	2.888	2.631
24	1.717	2.074	2.819
25	1.714	2.369	2.807
26	1.711	2.064	2.797
27	1.708	2.060	2.787
28	1.706	2.056	2.779

Table 8 presents the correlation coefficients found for PCB concentration versus wind speed and Table 9 presents a survey of the statistically significant correlations.

When interpreting the results of correlation analyses, care must be taken to avoid attributing greater importance to the correlations than is justified. As an example, at station SAR-S-U1 the correlation coefficient for PCB concentration versus wind from the north-northwest is 0.6894, and is significant at the 99% level. Examination of a graph of the data, included as Figure 2, shows that the majority of the points, are on the ordinate of the graph. Thus the data are skewed towards the lower end of the graph, and the correlation is being based primarily on the four other points on the graph. Consequently, the correlations should be interpreted as trends in most cases. The solution to this type of problem is a larger data base. Plots of a representative number of the most significant correlations are given in Appendix 5.

In general, sources of PCB's may be characterized as local, medium range and long range. To identify a local source conclusively, it must be encompassed by sampling stations, thus allowing observation during all wind conditions. The correlation with wind speed, however, can provide an indication of the distance of the sample site from the source. A significant positive correlation between PCB concentration and a single wind direction, combined with a significant positive correlation with wind speeds of 0-5 km/hr may imply local or medium-range sources of PCB's. As internal correlations may exist between wind direction and speed, it is not possible to draw more definite conclusions without undertaking multiple regression or vector analysis of the data. This was beyond the scope of this project.

No province-wide trends in correlations of PCB concentrations with transport of PCB's based on the data presented in this report because of potential interferences from local meteorologic conditions. As discussed in this section, however, there are definite trends suggesting short and medium range transport at many stations. The use of the histogram plots produced by the computer program makes identification of these trends relatively easy. A discussion of trends at each sampling station follows.

TABLE 8: CORRELATION COEFFICIENT - PCB CONCENTRATION vs WIND SPEED

	WIND SPEED (km/hr.)				
STATION	0-5	5-10	10-15	15-20	>20
BUR-S-U1	0.2825	0.0596	0.0241	-0.874	-0.2678
HAM-S-I1	0.3116	0.1667	0.2997	-0.2075	-0.4617[2]
HAM-S-I2	0.6204[3]	0.0674	0.6818	-0.3898[1]	-0.3945[1]
HAM-S-U1	0.6898[3]	-0.0453	-0.0038	-0.4231[2]	-0.3792[1]
HAM-S-U2	-0.0453	-0.2067	-0.4222[2]	-0.2502	0.5517[3]
KIN-S-U1	0.3978[1]	-0.0679	-0.3995[1]	-0.2705	0.0970
LON-S-U1	0.0740	0.3181	0.1910	-0.0953	-0.3011
MIS-S-U1	0.2650	-0.1669	-0.0348	-0.2510	0.0317
MIS-S-U2	0.0648	-0.0576	0.0586	-0.1168	0.0129
MIS-S-U3	0.2094	0.0517	-0.1781	-0.3142	0.0397
MIS-S-U4	-0.1753	-0.0267	0.1475	-0.0303	0.5189[3]
MOR-S-U1	0.1761	-0.0703	0.0207	-0.1090	-0.0907
NAN-S-R1	0.4108[2]	0.1790	-0.0558	-0.2350	-0.3278[1]
NAN-S-R2	0.3120	0.3383[1]	-0.1065	-0.2508	-0.3408[1]
OSH-S-U1	0.1502	-0.1700	-0.0690	-0.0289	-0.0498
STC-S-R1	0.4558[2]	-0.3894[2]	-0.3383[1]	-0.2015	-0.0820
SAR-S-I1	0.1303	0.2478	0.2160	-0.1676	-0.2769
SAR-S-U1	-0.0028	0.1189	0.4367[2]	-0.0639	-0.2548
SUD-S-S1	-0.2911	0.2502	0.2360	0.1466	-0.1300
SUD-S-R1	-0.3625[1]	-0.4082[2]	-0.3532[1]	0.2445	0.5320[3]
THU-S-R1	0.4328[2]	0.2115	-0.3900[2]	-0.3583[1]	-0.2125
THU-S-U1	0.4788[2]	-0.0227	-0.4141[2]	-0.2886	-0.0181
TOR-S-S1	0.3130	-0.0217	-0.1559	-0.2261	-0.1976
TOR-S-U1	0.5177[3]	-0.0177	-0.3975[1]	-0.3325	-0.3139
WIN-S-U1	0.5775[3]	0.1731	-0.4769[2]	-0.4194[2]	-0.2981

Notes: [1] Significant at 90% level
[2] Significant at 95% level
[3] Significant at 99% level

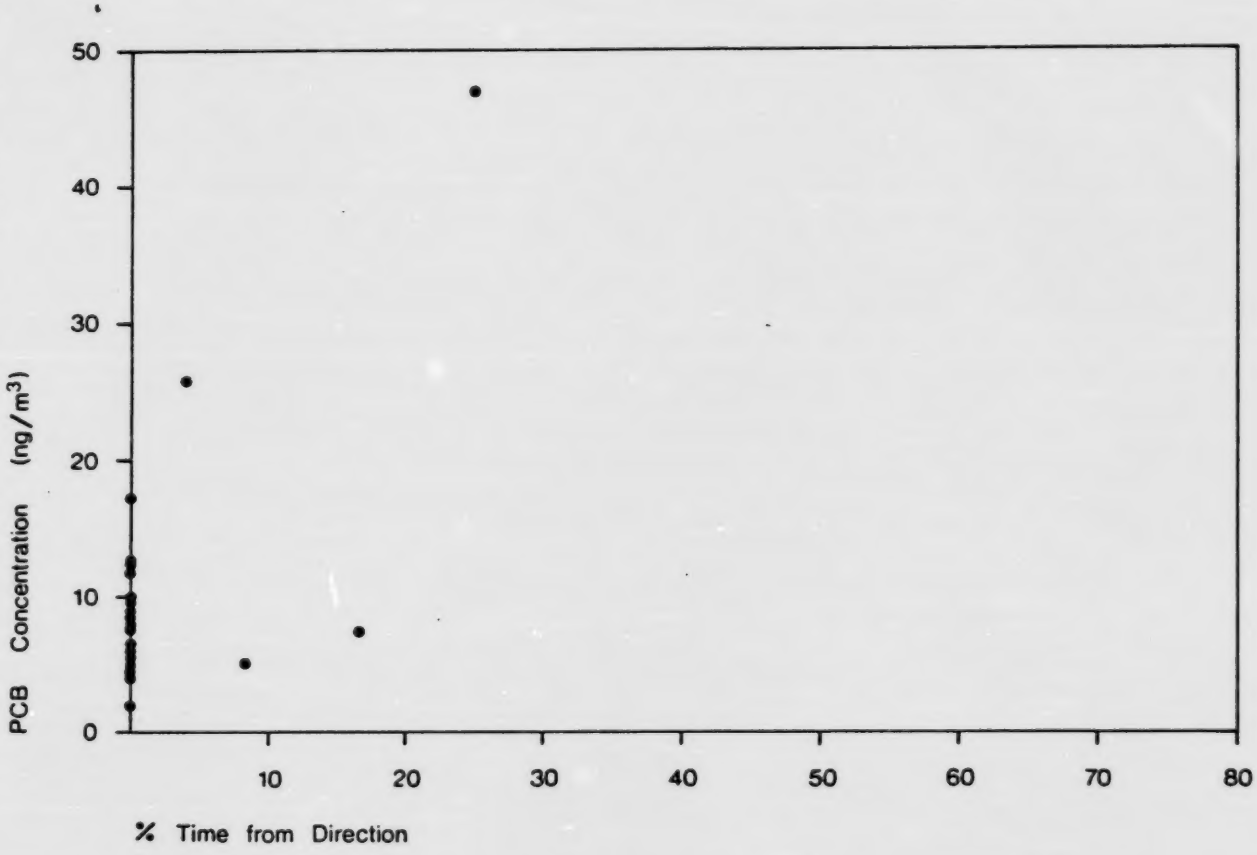
TABLE 9 SIGNIFICANT CORRELATIONS - PCB CONCENTRATION vs WIND SPEED

SIGNIFICANCE (%)	WIND SPEED (km/hr.) 0-5	5-10	10-15	15-20	>20	TOTAL
90	2	1	4	2	4	13
95	4	2	5	2	1	14
99	4	-	-	-	3	7
TOTAL	10	3	9	4	8	34

PCB Concentration vs Wind Direction Class

Figure 2

Station SAR-S-U1
Direction NNW



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BUR-S-U1

A definite trend is observed when winds are coming from the west towards the station. The largest correlation coefficient observed, 0.8448, was found at this station. There is a large electrical substation to the south-southwest of the station. As the Niagara escarpment is northwest of the station, it is possible that this resulted in local wind direction being different from that recorded at Hamilton airport from which the meteorological data was obtained. Graphs of the data for the west and west-southwest directions are provided in Appendix 5. There were no significant correlations with wind speed.

HAM-S-I1

A 95% signficance level correlation was found with winds from the southwest. A general trend may also be inferred with winds ranging from WNW through S. A 95% level correlation was found with winds in the >20 km/hr class. As this was a negative correlation, it implies that cleaner air was coming into the area during periods of high winds. This implies accumulation of PCB's from anthropogenic sources in the urban envelope, with dispersal during periods of high winds.

HAM-S-I2

A high correlation coefficient was found when winds were from the north. A trend was also found from the NW to the WSW directions. The largest correlation coefficient in that quadrant was with winds from the west. When winds were from the east, a negative correlation coefficient was found. This suggests local or medium range sources. This is supported by a 99% level correlation with wind speeds in the 0-5 km/hr class. It is further supported by the 90% level negative correlations with wind speeds in the 15-20 and >20 km/hr classes, which suggests that cleaner air enters the area during periods of high winds. A graph of the data for wind from the north and the 0-5 km/hr wind speed class is provided in Appendix 5.

HAM-S-U1

The same trends and patterns as were found at HAM-S-I1 were found at this station. A plot of data for wind from the north and the 0-5 km/hr wind speed class is given in Appendix 5.

HAM-S-U2

In contrast to the previous stations, only the south-southeast direction showed a significant correlation, which may indicate local sources. The >20 km/hr class showed a 99% level positive correlation, suggesting that this station may be further from the source than the previous stations, as well. A plot of the >20 km/hr wind speed class data is given in Appendix 5.

KIN-S-U1

This is an excellent example of a substantially clean area. There is no significant pattern apparent from examination of the histogram, but the 0-5 and 10-15 km/hr classes both showed correlations at the 90% level. This could be due to the skewed data problem outlined earlier or it could be local sources. The west-east pair show that a source may be located to the west of the site, but the correlations are not statistically significant, and so no definite conclusion can be drawn from the data.

LON-S-U1

While no significant correlations were found at this station, the pattern suggests that PCB's may be transported from the Sarnia area. This is supported by a corresponding pattern at the Sarnia sites.

MIS-S-U1, MIS-S-U2, MIS-S-U3, MIS-S-U4

A trend with winds ranging from S to SW is evident at these stations, with the south-southwest direction showing the highest correlation coefficient of

0.7306. All of the stations in Mississauga showed this pattern. This may be indicative of a local source generally to the south-southwest of the stations, as the stations in Toronto (TOR-S-U1 and TOR-S-S1) did not show this pattern under similar meteorological conditions. A report prepared by the Ontario Research Foundation for the Ministry entitled "An Assessment of Atmospheric PCB Levels in Mississauga" found similar results using sampling sites very near to the ones used in this study. Plots of the data for winds from the south at stations -U2 and -U3, and from the south-southwest at stations -U1 and -U3 are given in Appendix 5. Only MIS-S-U4 had a significant correlation with wind speed, this being in the >20 km/hr class at a significance level of 99%.

MOR-S-U1

A trend indicating sources to the south-southwest was found at this station, with the south-southwest correlation having a 99% significance level. No significant correlations with wind speed were found.

NAN-S-R1

While there were no significant correlations with wind direction at this station, a trend was observed with winds coming from the NNE through to WNW. A 95% significance level correlation was found for the 0-5 km/hr wind speed class and a 90% level negative correlation was found for the >20 km/hr class. These trends suggest the possibility of medium range transport from a generally northerly direction.

NAN-S-R2

At this station, the pattern observed at NAN-S-R1 is repeated, but the correlations with winds from the northeast and west-northwest had 95% and 90% significance levels, respectively. The south-southeast showed a 90% level negative correlation. This tends to support the trend inferred above for the northerly direction and indicates relatively cleaner air enters the area from the southeast.

OSH-S-U1

There was a 95% level correlation with wind direction from the southeast at this station, suggesting local sources. A trend was also apparent in the NNW to W directions, although the correlations were not statistically significant.

STC-S-R1

The correlation data indicate local sources to the north and possibly to the west-southwest and south-southwest of this station. All three directions had correlations significant at the 95% level. The 0-5 km/hr wind speed class showed a 95% significance level correlation while the 5-10 and 10-20 km/hr classes showed 95% and 90% level significant correlations, respectively, indicating short to medium range transport.

SAR-S-I1, SAR-S-U1

Both of these stations showed trends indicating PCB sources to the north-northwest. The generally east-southeast direction showed negative correlations, showing that the London area is not a significant source of PCB's. The 10-15 km/hr wind speed class at station SAR-S-U1 showed a 95% significant correlation. It should be noted that while a statistically significant correlation was found for the NNW wind direction at SAR-S-U1, the data are too limited to indicate more than a trend, as indicated in Figure 2. Plots of SAR-S-I1 data for winds from the NW and NNW, and SAR-S-U1 for winds from the NNW are given in Appendix 5.

SUD-S-S1

Winds from the south gave a 90% significant negative correlation at this station. A general positive trend with winds from the northwest quadrant was found, but no statistically significant correlations were obtained.

SUD-S-R1

A 95% significant correlation was found with winds from the south-southeast. Correlation for the south and southeast are elevated but not significant indicating the presence of sources in a generally southerly direction. When winds were from the east-northeast a 90% level negative correlation was found. Negative correlations significant at the 90%, 95% and 90% levels were found with wind speeds in the 0-5, 5-10 and 10-15 km/hr classes, respectively.

THU-S-R1

A significant pattern of correlation coefficients can be seen on the histogram for this station. The correlation coefficients from the south-southwest direction through to the north-northeast are all positive and most are significant at the 90% level or greater. The opposite directions show almost all negative correlation coefficients. This suggests that medium range sources exist in a generally southerly-to-easterly direction. The largest correlation coefficient was 0.5284 (sig. level 90%), with winds from the east-northeast. Local sources are suggested by the 95% significant 0-5 km/hr wind speed class correlation.

THU-S-U1

The same general trends found at THU-S-R1 were found at this station as well.

TOR-S-S1, TOR-S-U1

Both stations exhibited the same pattern - generally positive correlations with winds from the west and north and negative correlation with winds from the east and south. This suggests medium range sources to the north and west. TOR-S-U1 showed a 99% significance level correlation in the 0-5 km/hr class and a 90% significant negative correlation with winds in the 10-15 km/hr wind speed class. This indicates trapping of PCB's in the city envelope during periods of low winds. A plot of TOR-S-S1 data for winds from the north is give in Appendix 5.

WIN-S-U1

A pattern of positive correlations with winds generally from the west suggests PCB's are being transported from the Detroit vicinity into Canada. The largest correlation coefficient was for winds from the west, and had a 99% significance. The 0-5 km/hr wind speed class showed a 99% significant correlation. This implies trapping of PCB's in an urban air mass over Detroit and Windsor during periods of low winds. A plot of the wind speed data is given in Appendix 5.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Statistically significant correlations of PCB concentrations with wind direction were found for twenty-two of the twenty-five PCB sampling stations. A total of 65 significant wind direction correlations were found out of 400 wind direction correlations tested. However, no provincial or regional trends with specific wind directions were found.

Of the correlations between wind speed class and PCB concentration, 34 were found to be statistically significant out of 125 performed.

Some of the correlation data for wind speed and direction suggested the presence of local sources of PCB's in the vicinity of many of the sampling stations. Other wind direction and speed correlations appear to indicate medium range transport of PCB's. No comment can be made about long range PCB transport on the basis of the correlations performed and discussed in this report.

5.2 Recommendations

As discussed in Section 4.0, some of the significant correlations are based on limited data. As a second survey was undertaken in June 1980 it is recommended that when this data is available, it should be combined with the data in this report to form a larger data base to confirm the correlations already established.

It is also recommended that the meteorological data be examined for internal correlations by means of multiple regression techniques. In addition, correlations between PCB concentration and wind vector (made up of direction and speed) should be performed.

Evaluation of large air mass movements should be undertaken to assess the potential for long range transport of PCB's.

APPENDIX 1

PCB DATA

PCB DATA

PCB STATION: BUR-S-U1

DAY	PCB CONCENTRATION (ng/m**3)
1	5.2
2	10
3	16
4	12
5	-
6	1.0
7	2.6
8	-
9	5.7
10	2.9
11	5.4
12	23
13	6.4
14	1.5
15	5.0
16	-
17	4.7
18	4.6
19	5.4
20	1.2
21	3.2
22	2.0
23	2.1
24	2.3
25	2.5
26	7.1
27	2.4
28	3.2

PCB DATA

PCB STATION: HAM-S-I1

DAY	PCB CONCENTRATION (ng/m**3)
1	16
2	15
3	15
4	7.4
5	12
6	1.8
7	5.8
8	5.0
9	11
10	13
11	5.3
12	6.3
13	9.4
14	3.1
15	22
16	6.3
17	3.1
18	5.0
19	-
20	1.1
21	1.8
22	-
23	1.8
24	2.6
25	1.8
26	2.3
27	3.9
28	2.7

PCB DATA

PCB STATION: HAM-S-I2

DAY	PCB CONCENTRATION (ng/m**3)
1	-
2	13
3	17
4	18
5	-
6	5.0
7	3.0
8	9.0
9	4.7
10	8.2
11	5.0
12	11
13	4.2
14	4.7
15	4.6
16	4.2
17	1.0
18	4.6
19	-
20	3.7
21	3.0
22	2.7
23	9.4
24	2.0
25	2.1
26	3.4
27	1.4
28	2.6

PCB DATA

PCB STATION: HAM-S-U1

DAY	PCB CONCENTRATION (ng/m**3)
1	9.5
2	16
3	22
4	12
5	-
6	1.7
7	2.4
8	8.8
9	2.9
10	6.2
11	7.6
12	9.4
13	-
14	3.7
15	-
16	4.0
17	1.0
18	3.2
19	1.6
20	2.1
21	4.0
22	8.8
23	5.6
24	1.3
25	2.6
26	2.5
27	1.7
28	3.1

PCB DATA

PCB STATION: HAM-S-U2

DAY	PCB CONCENTRATION (ng/m**3)
1	10
2	13
3	1
4	9
5	-
6	3.8
7	3.6
8	8.2
9	18
10	5.6
11	4.4
12	11
13	5.0
14	7.7
15	9.5
16	4.2
17	5.7
18	4.4
19	4.1
20	1.2
21	14
22	11
23	1.9
24	74
25	1.2
26	3.5
27	-
28	2.7

PCB DATA

PCB STATION: KIN-S-U1

DAY	PCB CONCENTRATION (ng/m**3)
1	5.6
2	10
3	9.5
4	10
5	-
6	1.1
7	1.9
8	-
9	4.7
10	6.0
11	8.4
12	6.5
13	6.3
14	1.6
15	8.2
16	2.1
17	0.4
18	-
19	5.7
20	-
21	2.4
22	1.9
23	4.3
24	2.4
25	1.2
26	3.8
27	5.2
28	4.3

PCB DATA

PCB STATION: LON-S-U1

DAY	PCB CONCENTRATION (ng/m**3)
1	-
2	-
3	-
4	-
5	-
6	-
7	13
8	-
9	-
10	14
11	5.9
12	-
13	3.5
14	3.8
15	11
16	4.7
17	6.4
18	7.7
19	18
20	13
21	9.3
22	-
23	11
24	6.6
25	11
26	3.8
27	1.5
28	0.4

PCB DATA

PCB STATION: MIS-S-U1

DAY	PCB CONCENTRATION (ng/m**3)
1	11
2	14
3	15
4	8.7
5	-
6	2.1
7	5.8
8	4.1
9	3.0
10	7.2
11	4.0
12	6.7
13	10.2
14	2.3
15	-
16	-
17	5.1
18	3.5
19	-
20	1.9
21	6.0
22	1.6
23	1.6
24	0.9
25	4.3
26	3.0
27	3.4
28	2.1

PCB DATA

PCB STATION: MIS-S-U2

DAY	PCB CONCENTRATION (ng/m**3)
1	15
2	11
3	10
4	5.3
5	-
6	1.1
7	3.4
8	7.0
9	3.5
10	10
11	6.9
12	5.5
13	10
14	0.8
15	-
16	7.3
17	1.4
18	3.2
19	4.5
20	-
21	1.8
22	0.8
23	1.7
24	2.8
25	1.4
26	2.0
27	4.4
28	1.3

PCB DATA

PCB STATION: MIS-S-U3

DAY	PCB CONCENTRATION (ng/m**3)
1	11
2	11
3	18
4	11
5	15
6	5.6
7	2.7
8	9.0
9	2.7
10	21
11	5.8
12	8.7
13	9.9
14	3.2
15	-
16	-
17	2.3
18	3.0
19	-
20	2.2
21	2.5
22	0.6
23	1.6
24	0.8
25	2.7
26	2.1
27	2.2
28	1.6

PCB DATA

PCB STATION: MIS-S-U4

DAY	PCB CONCENTRATION (ng/m**3)
1	12
2	7.2
3	9.4
4	3.1
5	-
6	0.9
7	5.0
8	5.3
9	2.6
10	11
11	7.7
12	15
13	8.9
14	3.5
15	5.5
16	5.0
17	4.0
18	4.5
19	2.3
20	9.0
21	4.7
22	1.3
23	1.6
24	3.3
25	3.4
26	3.3
27	3.7
28	1.4

PCB DATA

PCB STATION: MOR-S-U1

DAY	PCB CONCENTRATION (ng/m**3)
1	16
2	6.8
3	2.6
4	3.9
5	12
6	6.0
7	1.0
8	1.8
9	4.8
10	5.2
11	6.4
12	8.6
13	7.3
14	0.6
15	-
16	6.4
17	8.6
18	6.8
19	1.8
20	2.2
21	1.8
22	3.2
23	-
24	3.0
25	-
26	2.3
27	1.8
28	3.9

PCB DATA

PCB STATION: NAN-S-R1

DAY	PCB CONCENTRATION (ng/m**3)
1	7.5
2	9.3
3	11
4	-
5	14
6	9.5
7	4.3
8	12
9	9.6
10	7.8
11	3.0
12	5.0
13	7.7
14	1.0
15	3.4
16	4.8
17	2.0
18	4.9
19	1.6
20	1.6
21	2.2
22	1.1
23	1.5
24	2.4
25	3.3
26	3.2
27	3.6
28	2.5

PCB DATA

PCB STATION: NAN-S-R2

DAY	PCB CONCENTRATION (ng/m**3)
1	14
2	9.2
3	12
4	9.4
5	18
6	1.8
7	1.3
8	4.9
9	2.3
10	7.1
11	4.4
12	7.9
13	4.7
14	1.1
15	2.5
16	7.8
17	2.6
18	5.4
19	-
20	2.5
21	2.1
22	3.9
23	2.1
24	3.8
25	2.3
26	1.8
27	0.9
28	2.4

PCB DATA

PCB STATION: OSH-S-U1

DAY	PCB CONCENTRATION (ng/m**3)
1	6.6
2	14
3	12
4	10
5	-
6	1.2
7	4.1
8	7.1
9	14
10	12
11	7.3
12	10
13	12
14	1.2
15	-
16	3.5
17	1.0
18	2.2
19	4.8
20	1.2
21	2.2
22	1.7
23	3.5
24	1.0
25	6.3
26	3.5
27	2.6
28	2.0

PCB DATA

PCB STATION: SAR-S-I1

DAY	PCB CONCENTRATION (ng/m**3)
1	20
2	-
3	21
4	7.8
5	17
6	10
7	3.7
8	10
9	6.6
10	6.5
11	3.8
12	11
13	9.8
14	0.6
15	3.5
16	8.3
17	4.4
18	2.0
19	2.6
20	-
21	2.2
22	4.9
23	3.0
24	-
25	6.5
26	8.3
27	1.1
28	-

PCB DATA

PCB STATION: SAR-S-U1

DAY	PCB CONCENTRATION (ng/m**3)
1	-
2	17
3	47
4	-
5	-
6	7.4
7	5.0
8	10
9	6.2
10	8.6
11	5.7
12	26
13	13
14	5.2
15	-
16	9.0
17	4.1
18	12
19	7.8
20	5.0
21	1.8
22	4.6
23	8.0
24	9.0
25	3.8
26	4.4
27	9.3
28	6.2

PCB DATA

PCB STATION: STC-S-R1

DAY	PCB CONCENTRATION (ng/m**3)
1	19
2	8.3
3	23
4	10
5	16
6	2.2
7	2.1
8	-
9	5.7
10	12
11	4.7
12	6.4
13	6.9
14	5.9
15	8.0
16	4.4
17	1.9
18	-
19	2.0
20	3.2
21	11
22	1.6
23	3.2
24	1.8
25	2.6
26	2.9
27	2.4
28	4.3

PCB DATA

PCB STATION: SUD-S-S1

DAY	PCB CONCENTRATION (ng/m**3)
1	4.3
2	12
3	9.2
4	5.0
5	-
6	4.2
7	1.1
8	6.7
9	-
10	8.1
11	6.3
12	5.2
13	9.4
14	3.7
15	-
16	-
17	2.2
18	5.0
19	2.3
20	2.4
21	2.6
22	1.0
23	1.4
24	2.1
25	1.5
26	3.2
27	2.3
28	3.9

PCB DATA

PCB STATION: SUD-S-R1

DAY	PCB CONCENTRATION (ng/m**3)
1	15
2	12
3	9.6
4	3.9
5	7.7
6	4.2
7	2.9
8	6.2
9	-
10	5.6
11	11
12	5.9
13	10
14	3.0
15	3.5
16	1.8
17	-
18	2.6
19	1.9
20	2.3
21	6.4
22	1.7
23	8.7
24	16
25	10
26	3.0
27	3.0
28	17

PCB DATA

PCB STATION: THU-S-R1

DAY	PCB CONCENTRATION (ng/m**3)
1	8.8
2	9.3
3	7.1
4	2.0
5	-
6	3.5
7	0.7
8	-
9	3.3
10	4.3
11	4.8
12	10
13	4.7
14	2.5
15	2.5
16	2.4
17	5.8
18	4
19	2.5
20	2.2
21	2.5
22	3.6
23	1.3
24	0.8
25	1.0
26	1.9
27	2.4
28	3.2

PCB DATA

PCB STATION: THU-S-U1

DAY	PCB CONCENTRATION (ng/m**3)
1	13
2	7.7
3	14
4	12
5	9.9
6	5.0
7	1.6
8	13
9	11
10	3.9
11	5.7
12	6.8
13	7.9
14	3.7
15	-
16	1.7
17	11
18	6.8
19	1.7
20	1.7
21	1.5
22	1.3
23	2.2
24	2.7
25	2.6
26	1.3
27	1.5
28	4.3

PCB DATA

PCB STATION: TOR-S-S1

DAY	PCB CONCENTRATION (ng/m**3)
1	11
2	10
3	-
4	15
5	-
6	2.2
7	3.8
8	5.8
9	4.6
10	8.2
11	4.0
12	6.3
13	7.3
14	2.9
15	-
16	-
17	3.1
18	3.5
19	-
20	1.9
21	5.1
22	4.6
23	2.6
24	3.5
25	5.0
26	4.5
27	4.4
28	1.6

PCB DATA

PCB STATION: TOR-S-U1

DAY	PCB CONCENTRATION (ng/m**3)
1	14
2	33
3	11
4	11
5	25
6	5.9
7	17
8	15
9	16
10	7.9
11	3.0
12	5.9
13	11
14	5.2
15	7.8
16	-
17	-
18	5.6
19	-
20	2.3
21	14
22	3.4
23	4.5
24	1.9
25	6.3
26	6.0
27	3.9
28	5.2

PCB DATA

PCB STATION: WIN-S-U1

DAY	PCB CONCENTRATION (ng/m**3)
1	6.6
2	11
3	13
4	10
5	16
6	4.8
7	2.2
8	5.9
9	9.5
10	6.1
11	8.5
12	5.2
13	6.0
14	5.6
15	6.8
16	2.9
17	3.2
18	4.5
19	2.8
20	2.7
21	4.3
22	2.0
23	-
24	2.2
25	1.5
26	1.5
27	3.3
28	3.4

APPENDIX 2

COMPUTER PROGRAM LISTING

THIS PRIGRAM IS DESIGNED TO CORRELATE PCB CONCENTRATION WITH WIND DIRECTION, WIND SPEED, TEMPERATURE, OR STANDARD DEVIATION OF TEMPERATURE.

1.0 INPUT DATA

THE INPUT DATA CONSISTS OF 28 PCB CONCENTRATIONS, AND THE MET DATA FOR THE 28 DAYS FOR WHICH THERE ARE PCB DATA. THE MET DATA CONSISTS OF TEMPERATURE, WIND DIRECTION, AND WIND SPEED DATA OBTAINED FROM MOE, HYDRO, OR AES, AS APPROPRIATE.

2.0 SUBROUTINES USED

THE SUBROUTINES USED AND A BRIEF DESCIPTION OF THEIR USE IS GIVEN BELOW.

A. DATA'ENTER - USED TO ENTER PCB OR MET DATA FROM TERMINAL

B. CORRECT - USED TO CORRECT OR CHANGE THE INPUT DATA

C. ECHO - PROVIDES FOR OUTPUT OF RAW DATA

D. ANALYZE - CONTROLS ANALYSIS OF DATA FOR CORRELATION CHARACTERISTICS

E. STATS - CALCULATES AVERAGE AND STD. DEV. OF DAILY TEMPS.

F. DIRCLASS - CLASSIFIES WIND DIRECTIONS INTO 16 POINTS OF COMPASS

G. SPDCLASS - CLASSIFIES WIND SPEED INTO 5 CLASSES

H. CORRELATION - CALCULATES CORRELATION COEFFICIENT AND SIGNIFICANCE

I. OUTPUT - OUTPUTS CALCULATED CORRELATION COEFFICIENTS AND ASSOCIATED STATISTICS

J. GRAPH - OUTPUTS HISTOGRAM PLOT OF CORRELATION COEFFICIENTS VS WIND DIRECTION CLASS

K. CLOSE'FILE - STORES CURRENT PCB OR STATION DATA ON A DISK FILE

L. RETRIEVE - FETCHES PCB AND/OR STATION DATA FROM A DISK FILE

```
MAP1 WMI$(15),S,15
MAP1 GRAPH$(31,80),S,1
```

```
              MAP1 POBSTAT$,S,25
              MAP1 METSTAT$,S,25
              MAP1 MENU$,S,109,"1. ENTER DATA@ @2. RETRIEVE DATA@ @3. CORRECT&
TAC 14. ECHO DATAC @5. ANALYZE DATA@ @6. FIGLE@ @7. END"
              MAP1 DELIM$,S,1,"@"
              MAP1 NINETY$,S,5
              MAP1 NINETYFIVE$,S,5
              MAP1 NINETYNINE$,S,5
              MAP1 X$,S,80

              DIM POBNAM$(25),METNAM$(13),SIGNDIR$(16),SIGNSPD$(5)
              DIM TLINEWINDD(16),SWINDD(16),TLINEWINDS(5),SWINDS(5)
              DIM POB(28),STATION(29,24,3),AVTEMP(28),DEVTEMP(28),X(28)
              DIM Y(28),DIRCLAS(28,16),SPDCLAS(28,5),WDCOEFF(16)
              DIM WDCOEFF(5)

TA N,N,N,W,N,W,W,N,W,W,W,S,W,S,W,S,S,W,S,S,S,E,S,E,E,E,E,E,E,N,E,N
TA E,N,N,E
AD GRAPH$(32,1),GRAPH$(32,4),GRAPH$(32,5),GRAPH$(32,6),GRAPH$(32,9)
AD GRAPH$(32,10),GRAPH$(32,14),GRAPH$(32,15),GRAPH$(32,16),GRAPH$(32,20)
AD GRAPH$(32,24),GRAPH$(32,25),GRAPH$(32,26),GRAPH$(32,29),GRAPH$(32,30)
AD GRAPH$(32,34),GRAPH$(32,35),GRAPH$(32,36),GRAPH$(32,45),GRAPH$(32,49)
AD GRAPH$(32,50),GRAPH$(32,51),GRAPH$(32,54),GRAPH$(32,55),GRAPH$(32,59)
AD GRAPH$(32,60),GRAPH$(32,61),GRAPH$(32,65),GRAPH$(32,69),GRAPH$(32,70)
AD GRAPH$(32,71),GRAPH$(32,74),GRAPH$(32,75),GRAPH$(32,79),GRAPH$(32,79)
AD GRAPH$(32,80)

              DATA THU-S-U1,THU-S-R1,SUD-S-S1,SUD-S-R1,LIN-S-U1
              DATA SAR-S-I1,SAR-S-U1,MOR-S-U1,WIN-S-U1,HAM-S-I1
              DATA HAM-S-I2,HAM-S-U1,HAM-S-U2,STC-S-R1,NAN-S-R1
              DATA NAN-S-R2,TOR-S-U1,TOR-S-S1,OSH-S-U1,BUR-S-U1
              DATA MIS-S-U1,MIS-S-U2,MIS-S-U3,MIS-S-U4,KIN-S-U1

              DATA MOE-14016,MOE-12032,MOE-12034,AES- LOND,MOE-29024
              DATA MOE-27049,MOE-35033,MOE-33003,MOE-45025,AES- KING
              DATA MOE-77033,AES- TBAY,HYD- NANT

              DATA  MASTER,DATA'ENTER,CORRECT,ECHO,ANALYZE,STATS,DIRCLASS
              DATA  SPDCLASS,CORRELATION,OUTPUT,GRAPH,CLOSE'FILE,RETRIEVE

              FOR I=1 TO 25
                  READ POBNAM$(I)
              NEXT I

              FOR I=1 TO 13
                  READ METNAM$(I)
              NEXT I

              FOR I=1 TO 13
                  READ WMI$(I)
              NEXT I

              RECNUM=22
              OPEN #1,"STATS.DAT",RANDOM,16,RECNUM
              READ #1,MAXWEATHER
              CLOSE #1

DECISION1:    PRINT TAB(-1,0)
```

```
                %CALL MENU,MENU$,DELIM$,6,15
                PRINT TAB(4,15);"SELECT OPTION: ";
                %CALL ASKOPT,"1234567",01,1
                PRINT TAB(-1,0)
                ON ERROR GOTO ERROR1
                WMI=1
                ON 01 CALL DATA'ENTER,RETRIEVE,CORRECT,ECHO,ANALYZE,FIDDLE
                IF 01#7 GOTO DECISION1
                PRINT TAB(-1,0)
                END

!*****************************************************************************

!          SUBROUTINE DATA'ENTER

!*****************************************************************************

DATA'ENTER:     INPUT "ENTER POD (1) OR STATION (2) DATA, OR QUIT (3)",A1
                IF A1=3 RETURN
                WMI=2
                ON A1 GOTO POD'ENTR,STAT'ENTR
                GOTO DATA'ENTER
    POD'ENTR:   INPUT "NUMBER OF NEW POD DATA FILE (1 - 26)? ",PODNUM
                INPUT "STATION START TIME: ",START
                FOR I=1 TO MAXWEATHER-1
                    PRINT USING "ENTER POD CONCENTRATION FOR DAY ###",I
                    INPUT POD(I)
                NEXT I
                FLAG3=1
                CALL CLOSE'FILE
                GOTO DATA'ENTER

    STAT'ENTR:  INPUT "NUMBER OF NEW MET DATA FILE (1 - 13)? ",STATNUM
                INPUT "DAY TO START ENTERING TEMP DATA: ",STARTDAY
                IF STARTDAY>MAXWEATHER GOTO INWIND
                IF STARTDAY#1 FLAG2=3:A2=STATNUM:I=STARTDAY:CALL RETRIEVE
                FOR I=STARTDAY TO MAXWEATHER
                    FOR J=1 TO 24
                        PRINT USING "DAY ##  - ",I;
                        PRINT USING "ENTER TEMPERATURE FOR HOUR ##: ",J-1;
                        INPUT " ",STATION(I,J,1)
                        STATION(I,J,1)=STATION(I,J,1)/10.
                    NEXT J
                    PRINT CHR$(007)
                NEXT I
                FLAG3=2
                CALL CLOSE'FILE
      INWIND:   IF STARTDAY#1 INPUT "DAY TO START ENTERING SPEED DATA: ",STARTDAY
                IF STARTDAY>MAXWEATHER GOTO DIRIN
                IF STARTDAY#1 FLAG2=2:A2=STATNUM:CALL RETRIEVE
                FOR I=STARTDAY TO MAXWEATHER
                    FOR J=1 TO 24
                        PRINT USING "DAY ## - ",I,
                        PRINT USING "ENTER WIND SPEED FOR HOUR ##: ",J-1;
                        INPUT " ",STATION(I,J,3)
                    NEXT J
                    PRINT CHR$(007)
                NEXT I
```

```
            FLAG3=2
            CALL CLOSE'FILE
     DIRIN: IF STARTDAY#1 INPUT "DAY TO START ENTERING DIR DATA: ",STARTDAY
            IF STARTDAY>MAXWEATHER GOTO SKIPDIRN
            IF STARTDAY#1 FLAG1=2:A2=STATNUM:CALL RETRIEVE
            FOR I=STARTDAY TO MAXWEATHER
                FOR J=1 TO 24
                    PRINT USING "DAY ## - ",I;
                    PRINT USING "ENTER WIND DIRECTION FOR HOUR ##: ";J-1;
                    INPUT "",STATION(I,J,2)
                NEXT J
                PRINT CHR$(007)
            NEXT I
IPDIRN:     FLAG3=2
            CALL CLOSE'FILE
            GOTO DATA'ENTER
*****************************************************************************

          SUBROUTINE CORRECT

*****************************************************************************

RRECT: INPUT "DO YOU WANT TO MODIFY (1) THE DATA, OR QUIT (2) ",A

       IF A=2 RETURN
       WMI=3
       INPUT "DO YOU WANT TO LOAD DATA FROM DISK? ",A1$
       IF A1$[1,1]="Y" GOTO DISKDATA ELSE GOTO TYPE

DISKDATA:   CALL RETRIEVE

TYPE:       INPUT "MODIFY POD (1) OR STATION (2) DATA? ",A1


MODIFY:     INPUT "WHAT DAYS DATA DO YOU WANT TO MODIFY? ",DAY
            ON A1 GOTO POD'MOD,STAT'MOD

   POD'MOD: INPUT "ENTER NEW POD CONCENTRATION:",POD(DAY)
            GOTO DATA'SAVE

   STAT'MOD:INPUT "MODIFY TEMP (1), DIRECTION (2), OR SPEED (3)? ",A3
            INPUT "TIME TO BE MODIFIED? ",TIMEDAY:TIMEDAY=TIMEDAY+1
            PRINT USING "CURRENT VALUE IS: ###.#",STATION(DAY,TIMEDAY,A3)
            INPUT "ENTER THE NEW DATA:",STATION(DAY,TIMEDAY,A3)
            GOTO DATA'SAVE

  DATA'SAVE:INPUT "SAVE THE DATA ON DISK? ",A2$
            IF A2$="Y" OR A2$="YES" CALL CLOSE'FILE
            GOTO CORRECT

*****************************************************************************

        SUBROUTINE ECHO

*****************************************************************************

HO:         INPUT "ECHO POD (1) OR STATION (2) DATA, OR QUIT (3) ",A1
            IF A1=3 RETURN
```

```
            UMI=4
            ON A1 GOTO PCB'ENC,STAT'ENC
            GOTO ECHC
PCB'ENC:    INPUT "PCB STATION NUMBER? (1 - 26): ",A2
            IF A2=PCBNUM GOTO ECHOPCB
            FLAG2=1
            CALL RETRIEVE
ECHOPCB:    PRINT CHR$(012)
            FOR I=1 TO 9:PRINT " ":NEXT I
            PRINT TAB(35);"PCB DATA":PRINT " ":PRINT " "
            PRINT USING "     PCB STATION: \#####\",PCBNAM$(PCBNUM)
            PRINT " ":PRINT " "
            PRINT TAB(10);"PCB CONCENTRATION (ng/m**3)"
            PRINT "     DAY"
            F3$="###.##"
            FOR I=1 TO MAXWEATHER-1
                PRINT USING "      ###",I;
                IF PCB(I)#99 PRINT USING F3$,TAB(17);PCB(I) ELSE PRINT &
                    TAB(20);"-"
            NEXT I
            PRINT CHR$(012)
            GOTO ECHO

STAT'ENC:   INPUT "MET STATION NUMBER? ",A2
            IF A2=STATNUM GOTO EKO'STAT
            FLAG2=2
            CALL RETRIEVE
EKO'STAT:   FOR I=1 TO MAXWEATHER
                PRINT CHR$(012)
                FOR I1=1 TO 5:PRINT " ":NEXT I1
                PRINT TAB(31);"MET STATION DATA"
                FOR I1=1 TO 4:PRINT " ":NEXT I1
                PRINT USING "     MET STATION: \########\",METNAM$(STATNUM)
                FOR I1=1 TO 4:PRINT " ":NEXT I1
                PRINT USING "     DAY ##",I
                FOR I1=1 TO 4:PRINT " ":NEXT I1
                PRINT TAB(11);"TEMPERATURE";TAB(24);"WIND SPEED"; &
                    TAB(37);"WIND DIRECTION"
                PRINT TAB(13);"(DEG C)";TAB(25);"(KM/HR)";TAB(37); &
                    "(DEG REL NORTH)"
                PRINT "     HOUR"
                FOR J=1 TO 24
                    PRINT USING "     #ZOO    ##.#          ##.#          &
###",J-1,STATION(I,J,1),STATION(I,J,3),STATION(I,J,2)
                NEXT J
            NEXT I
            PRINT CHR$(012)
            GOTO ECHO

!*****************************************************************
!
!               SUBROUTINE  ANALYZE
!
!*****************************************************************

ANALYZE:    WMI=8:N=MAXWEATHER-1
            FLAG2=1
            INPUT "PCB STATION TO ANALYZE: ",A2
```

```
                    PCENUM=A2
                    CALL RETRIEVE
                    FLAG2=2
                    INPUT "NET STATION TO ANALYZE: ",A2
                    NETNUM=A2
                    CALL RETRIEVE

                    FOR I1=1 TO MAXWEATHER-1
                        Y(I1)=PCB(I1)
PRINT USING "PCB(##)= ###.##",I1,PCB(I1)
                    NEXT I1
                    CALL STATS

                    FOR J=1 TO 4
                        ON J GOTO TEMP,SIGTEMP,WIND'DIRN,WIND'SPEED

TEMP:                   FOR I1=1 TO MAXWEATHER-1
                            X(I1)=AVTEMP(I1)
PRINT USING "AVTEMP(##)= ###.##",I1,AVTEMP(I1)
                        NEXT I1
                        CALL CORRELATION
                        TCOEFF=RCOEFF
                        TLINETEMP=TLINE
                        STEMP=SLOPE
                        SIGNTEMP$=SIG$
                        GOTO NEXT4

SIGTEMP:                FOR I1=1 TO MAXWEATHER-1
                            X(I1)=DEVTEMP(I1)
PRINT USING "DEVTEMP(##)= #!#.##",I1,DEVTEMP(I1)
                        NEXT I1
                        CALL CORRELATION
                        SIGTCOEFF=RCOEFF
                        TLINESIGTEMP=TLINE
                        SSIGTEMP=SLOPE
                        SIGNSIGTEMP$=SIG$

                        GOTO NEXT4

WIND'DIRN:              FOR J1=1 TO 16
                            FOR I1=1 TO MAXWEATHER-1
                                X(I1)=DIRCLAS(I1,J1)
PRINT USING "DIRCLAS(## , ##)= ###.##",I1,J1,X(I1)
                            NEXT I1
                            CALL CORRELATION
                            WDCOEFF(J1)=RCOEFF
                            TLINEWINDD(J1)=TLINE
                            SWINDD(J1)=SLOPE
                            SIGNDIR$(J1)=SIG$

                        NEXT J1
                        GOTO NEXT4

WIND'SPEED:             FOR J1=1 TO 5
                            FOR I1=1 TO MAXWEATHER-1
                                X(I1)=SPECLAS(I1,J1)
PRINT USING "SPECLAS(## , ##)= ###.##",I1,J1,X(I1)
                            NEXT I1
```

```
                        CALL CORRELATION
                        ASCII$(J1)="CODE$"
                        TLINE$(J1)=TLIN$
                        WIND$(J1)="CLIP"
                        DIGINFO$(J1)=DIG$

                    NEXT J1

NEXT4.              NEXT J

                CALL OUTPUT
                PRINT CHR$(012)
                CALL DRAPH

                RETURN
'*************************************************************************

                SUBROUTINE  STATI

'*************************************************************************

STATS:          WMI=6
                FOR I=1 TO MAXWEATHER-1
                    AVTEMP(I)=0
                    DEVTEMP(I)=0
                    SUMDEV=0
                    DAYFLG=0
                    FOR I9=1 TO 16
                        DIRCLAS(I,I9)=0
                    NEXT I9
                    FOR I9=1 TO 5
                        SPDCLAS(I,I9)=0
                    NEXT I9
                    IF V(I)=99 GOTO NXTI

                    FOR I1=START TO 24
                        AVTEMP(I)=AVTEMP(I)+ STATION(I,I1,1)
                    NEXT I1
                    FOR I1=1 TO START-1
                        AVTEMP(I)=AVTEMP(I)+STATION(I+1,I1,1)
                    NEXT I1
                    AVTEMP(I)=AVTEMP(I)/24.
'PRINT USING "AVTEMP(##)= ##.#";I,AVTEMP(I)
                    FOR I1=START TO 24
                        SUMDEV=SUMDEV+(STATION(I,I1,1)-AVTEMP(I))**2
                    NEXT I1
                    FOR I1=1 TO START-1
                        SUMDEV=SUMDEV+(STATION(I+1,I1,1)-AVTEMP(I))**2
                    NEXT I1
                    DEVTEMP(I)=SQR(SUMDEV/24.)

                    FOR I1=START TO 24
                        CALL DIRCLASS
                    NEXT I1
                    DAYFLG=1
                    FOR I1=1 TO START-1
                        CALL DIRCLASS
                    NEXT I1
```

```
                DAYFLG=0
                FOR I1=START TO 24
                    CALL SPDCLASS
                NEXT I1
                DAYFLG=1
                FOR I1=1 TO START-1
                    CALL SPDCLASS
                NEXT I1
    NXTI:     NEXT I
              FOR I=1 TO MAXWEATHER-1
                  FOR J=1 TO 16
                    DIRCLAS(I,J)=(DIRCLAS(I,J)/24.)*100
                  NEXT J
                  FOR J=1 TO 5
                      SPDCLAS(I,J)=(SPDCLAS(I,J)/24.)*100
                  NEXT J
              NEXT I

              RETURN
'*************************************************************************

                  SUBROUTINE DIRCLASS

'*************************************************************************

RCLASS:
   WMI=7
   WIND=STATION(I+DAYFLG,I1,2)
   IF WIND<= 11.25 OR WIND> 348.75 DIRCLAS(I,1)=DIRCLAS(I,1)+1:RETURN
   IF WIND> 11.25 AND WIND<= 33.75 DIRCLAS(I,2)=DIRCLAS(I,2)+1:RETURN
   IF WIND> 33.75 AND WIND<= 56.25 DIRCLAS(I,3)=DIRCLAS(I,3)+1:RETURN
   IF WIND> 56.25 AND WIND<= 78.75 DIRCLAS(I,4)=DIRCLAS(I,4)+1:RETURN
   IF WIND> 78.75 AND WIND<=101.25 DIRCLAS(I,5)=DIRCLAS(I,5)+1:RETURN
   IF WIND>101.25 AND WIND<=123.75 DIRCLAS(I,6)=DIRCLAS(I,6)+1:RETURN
   IF WIND>123.75 AND WIND<=146.25 DIRCLAS(I,7)=DIRCLAS(I,7)+1:RETURN
   IF WIND>146.25 AND WIND<=168.75 DIRCLAS(I,8)=DIRCLAS(I,8)+1:RETURN
   IF WIND>168.75 AND WIND<=191.25 DIRCLAS(I,9)=DIRCLAS(I,9)-1:RETURN
   IF WIND>191.25 AND WIND<=213.75 DIRCLAS(I,10)=DIRCLAS(I,10)+1:RETURN
   IF WIND>213.75 AND WIND<=236.25 DIRCLAS(I,11)=DIRCLAS(I,11)+1:RETURN
   IF WIND>236.25 AND WIND<=258.75 DIRCLAS(I,12)=DIRCLAS(I,12)+1:RETURN
   IF WIND>258.75 AND WIND<=281.25 DIRCLAS(I,13)=DIRCLAS(I,13)+1:RETURN
   IF WIND>281.25 AND WIND<=303.75 DIRCLAS(I,14)=DIRCLAS(I,14)+1:RETURN
   IF WIND>303.75 AND WIND<=326.25 DIRCLAS(I,15)=DIRCLAS(I,15)+1:RETURN
   DIRCLAS(I,16)=DIRCLAS(I,16)+1:RETURN


'*************************************************************************

                  SUBROUTINE SPDCLASS

'*************************************************************************
DCLASS:
   WMI=8
   SPEED=STATION(I+DAYFLG,I1,3)
   IF SPEED<=5 SPDCLAS(I,1)=SPDCLAS(I,1)+1:RETURN
   IF SPEED>5  AND SPEED<=10 SPDCLAS(I,2)=SPDCLAS(I,2)+1:RETURN
   IF SPEED>10 AND SPEED<=15 SPDCLAS(I,3)=SPDCLAS(I,3)+1:RETURN
```

```
File DSK1:TTD.BAS[204,1] Printed on 5/11/ 20                    Page 7

     IF SPEED>15 AND SPEED<=20 SPDCLAS(I,4)=SPDCLAS(I,4)+1:RETURN
     SPDCLAS(I,5)=SPDCLAS(I,5)+1:RETURN
*****************************************************************
!
!          SUBROUTINE CORRELATION
!
*****************************************************************

CORRELATION:   MMI=9:N=MAXWEATHER-1
               SUMX=0:SUMY=0:SUMXSQR=0:SUMYSQR=0:SUMXY=0
               SKIPPED=0:SUMX2=0:SUMY2=0:VAR1=0:SDEV=SLOPE=0
               FOR K=1 TO N
                    IF Y(K)=99 SKIPPED=SKIPPED+1:GOTO NXTK
                    SUMX=SUMX+X(K)
                    SUMY=SUMY+Y(K)

                    SUMXSQR=SUMXSQR+X(K)**2
                    SUMYSQR=SUMYSQR+Y(K)**2

                    SUMXY=SUMXY+(X(K)*Y(K))
          NXTK:     NEXT K
                    N=N-SKIPPED

                    IF SUMXSQR=0 SUMXSQR=.0001
' PRINT SUMX,SUMY,SUMXSQR,SUMYSQR,SUMXY
                    SLOPE=(N*SUMXY-(SUMX*SUMY))/(N*SUMXSQR-(SUMX**2))

.                   RCOEFF=(SUMXY-((SUMX*SUMY)/N))/SQR((SUMXSQR-(SUMX**2/N))* &
                              (SUMYSQR-(SUMY**2/N)))
! PRINT RCOEFF,SLOPE
                    TLINE=(RCOEFF*SQR(N-2))/SQR(1-RCOEFF**2)

! T VALUE LOOKED UP IN RANDOM FILE FROM DEGREES OF FREEDOM. DEGREES OF
! FREEDOM CALC. AS #'DAYS-2 - # OF SKIPPED DAYS (-7 TO INDEX FILE)
!(NUMBER OF DAYS - NUMBER SKIPPED) CALCULATED AS N, ABOVE

                    RECNUM=N-9
                    OPEN #1,"DSK0:STATS.DAT",RANDOM,16,RECNUM
                    READ #1,NINETY$,NINETYFIVE$,NINETYNINE$
                    CLOSE #1

                    NINETY=VAL(NINETY$)
                    NINETYFIVE=VAL(NINETYFIVE$)
.                   NINETYNINE=VAL(NINETYNINE$)

!PRINT USING "90%: ##.### , 95%: ##.### , 99%: ##.###",NINETY,NINETYFIVE,&
!NINETYNINE

                    SIG$="    "
                    IF ABS(TLINE)>= NINETY AND ABS(TLINE)<NINETYFIVE SIG$="90%":RETUR
                    IF ABS(TLINE)>= NINETYFIVE AND ABS(TLINE)<NINETYNINE SIG$="95%":R
                    IF ABS(TLINE)>= NINETYNINE SIG$="99%"

                    MMI=3:RETURN

!*****************************************************************
!
!                   SUBROUTINE OUTPUT
```

```
TPUT:   WII=10
        PRINT CHR$(112)

        PRINT TAB(24);"CORRELATION COEFFICIENTS":PRINT " ":PRINT " "
        PRINT USING "PCB STATION: \##-###\",PCBNAM$(PCBNUM);
        PRINT USING "MET. STATION: \#####\",TAB(50);METNAM$(METNUM)
        PRINT
        PRINT USING "NUMBER OF VALID DAYS: ##";N
        PRINT

        PRINT TAB(17);"PCB CONCENTRATION VS WIND DIRECTION":PRINT " "
        PRINT TAB(20);"WIND DIRECTION"
        PRINT TAB(10);"N";TAB(18);"NNW";TAB(27);"NW";TAB(36);"WNW"; &
              TAB(46);"W";TAB(54);"WSW";TAB(63);"SW";TAB(72);"SSW"
        PRINT " "
        F1$="##.####  "
        F3$="##.###  "
        F4$="  \#\    "
        F5$="###.###  "
        F6$="  \#\    "
        PRINT "   r   ";
        FOR I=1 TO 7
            PRINT USING F1$,WDCOEFF(I);
        NEXT I
        PRINT USING "##.####",TAB(70);WDCOEFF(8)

        PRINT "SLOPE ";
        FOR I=1 TO 7
            PRINT USING F3$,SWINDD(I);
        NEXT I
        PRINT USING F3$,TAB(69);SWINDD(8)
        PRINT "   t  ";
        FOR I = 1 TO 7
            PRINT USING F3$,TLINEWINDD(I);
        NEXT I
        PRINT USING F3$,TAB(69);TLINEWINDD(8)
        PRINT "  SIG ";
        FOR I=1 TO 7
            PRINT USING F4$,SIGNDIR$(I);
        NEXT I
        PRINT USING F4$,TAB(69);SIGNDIR$(8)
        PRINT

        PRINT TAB(10);"S";TAB(18);"SSE";TAB(27);"SE";TAB(36); &
              "ESE";TAB(46);"E";TAB(54);"ENE";TAB(63);"NE";TAB(72);"NNE"
        PRINT " "
        PRINT "   r   ";
        FOR I=9 TO 15
            PRINT USING F1$,WDCOEFF(I);
        NEXT I
        PRINT USING "#.####",TAB(70);WDCOEFF(16)
        PRINT "SLOPE ";
        FOR I=9 TO 15
         '  PRINT USING F3$,SWINDD(I);
        NEXT I
        PRINT USING F3$,TAB(69);SWINDD(16)
```

```
        PRINT "    t  ";
        FOR I=9 TO 15
            PRINT USING F3$,TLINEWINDD(I);
        NEXT I
        PRINT USING F3$,TAB(69);TLINEWINDS(16)
        PRINT "  SIG ";
        FOR I=9 TO 15
            PRINT USING F4$,SIGNDIR$(I);
        NEXT I
        PRINT USING F4$,TAB(69);SIGNDIR$(16)
        FOR I=1 TO 5:PRINT " ":NEXT I

        PRINT TAB(13);'POB CONCENTRATION VS WIND SPEED "
        PRINT " "
        PRINT TAB(21);"WIND SPEED (KM/HR)"
        PRINT TAB(8);"0 - 5";TAB(18);"5 - 10";TAB(27);"10 - 15"; &
              TAB(37);"15 - 20";TAB(49);">20"
        PRINT " "
        F2$=" ##.####  "
        PRINT "    r  ";
        FOR I=1 TO 4
            PRINT USING F2$,WDCOEFF(I);
        NEXT I
        PRINT USING F2$,TAB(46);WDCOEFF(5)
        PRINT "SLOPE ";
        FOR I=1 TO 4
            PRINT USING F2$,SWINDS(I);
        NEXT I
        PRINT USING F5$,TAB(46);SWINDS(5)
        PRINT "    t  ";
        FOR I=1 TO 4
            PRINT USING F5$,TLINEWINDS(I);
        NEXT I
        PRINT USING F5$,TAB(46);TLINEWINDS(5)
        PRINT "  SIG ";
        FOR I=1 TO 4
            PRINT USING F6$,SIGNSPD$(I);
        NEXT I
        PRINT USING F6$,TAB(46);SIGNSPD$(5)
        FOR I=1 TO 3:PRINT " ":NEXT I

        PRINT "POB CONCENTRATION VS AVERAGE TEMPERATURE:";
        PRINT USING "   r      ##.####",TAB(43);TCOEFF
        PRINT USING "SLOPE  ###.####",TAB(43);STEMP
        PRINT USING "   t    ###.####",TAB(43);TLINETEMP
        PRINT USING " SIG      \#\ ",TAB(43);SIGNTEMP$
        FOR I=1 TO 3:PRINT " ":NEXT I

        PRINT "POB CONCENTRATION VS STD DEV TEMPERATURE:";
        PRINT USING "   r      ##.####",TAB(43);SIGTCOEFF
        PRINT USING "SLOPE  ###.####",TAB(43);SSIGTEMP
        PRINT USING "   t    ###.####",TAB(43);TLINESIGTEMP
        PRINT USING " SIG      \#\ ",TAB(43);SIGNSIGTEMP$
        RETURN

!*********************************************************************
!
!               SUBROUTINE GRAPH
```

```
FH:         BLANK$=" ":UMI=11
            STAR$="*"
            WIND$=":NIW DNIW"
            POB$=":NIW BOP "
            START$="START TIME"
            VALID$="VALID DAYS"
            FOR I=1 TO 61
                IF I=32 GOTO NXTIII
                 FOR J=1 TO 80
                      GRAPH$(I,J)=BLANK$
                 NEXT J
NXTIII:     NEXT I
            FOR I=1 TO 80
                 GRAPH$(31,I)=STAR$
            NEXT I
            COUNT=0.80
            FOR I=1 TO 20 STEP 2
                 COUNT=COUNT-0.05
                 GRAPH$(I,39)="+"
                 GRAPH$(I,40)=STAR$
                 GRAPH$(I,41)="0"
                 GRAPH$(I,42)="."
                 STRING$=COUNT USING "#.##"
                 GRAPH$(I,43)=STRING$[-2,-2]
                 GRAPH$(I,44)=STRING$[-1,-1]
                 GRAPH$(I+1,40)=STAR$
            NEXT I
            GRAPH$(32,40)=STAR$
            COUNT=0.0
            FOR I=33 TO 60 STEP 2
                 COUNT=COUNT-0.05
                 GRAPH$(I,39)="-"
                 GRAPH$(I,40)=STAR$
                 GRAPH$(I,41)="0"
                 GRAPH$(I,42)="."
                 STRING$=COUNT USING "#.##"
                 GRAPH$(I,40)=STRING$[-2,-2]
                 GRAPH$(I,44)=STRING$[-1,-1]
                 GRAPH$(I+1,40)=STAR$
            NEXT I
            GRAPH$(60,40)=STAR$
            GRAPH$(61,39)="-"
            GRAPH$(61,40)=STAR$
            GRAPH$(61,41)="0"
            GRAPH$(61,42)="."
            GRAPH$(61,43)="7"
            GRAPH$(61,44)="5"
            PRINT TAB(19);"CORRELATION COEFFICIENTS VS WIND DIRECTION"
            FOR I=9 TO 1 STEP -1
                 GRAPH$(1,I)=WIND$[-I,-I]
                 GRAPH$(2,I)=POB$[-I,-I]
            NEXT I
            FOR I=65 TO 74
                 GRAPH$(1,I)=START$[(I-64),(I-64)]
                 GRAPH$(2,I)=VALID$[(I-64),(I-64)]
```

```
              NEXT I
              GRAPH$(1,79)="!"
              GRAPH$(2,79)="!"
              FOR I=1 TO 10
                  GRAPH$(2,I+9)=FIDNAM$(PCBNUM)[I,I]
                  GRAPH$(1,I+9)=METNAM$(METNUM)[I,I]
              NEXT I
              START1$=START USING "#Z" + "00"
              VALID1$=N USING "#Z"
              FOR I=1 TO 4
                  GRAPH$(1,I+74)=START1$[I,I]
                  GRAPH$(2,I+74)=VALID1$[I,I]
              NEXT I

              GPHHGT=INT(WDCOEFF(1)/0.025)
              IF ABS(GPHHGT)>30 GPHHGT=30*SGN(GPHHGT)

!
! DO FIRST DIRECTION AT ONE FOR SPACING REASONS
!
              INCR=SGN(GPHHGT)*-1.
              IF GPHHGT=0 THEN GOTO SKIP1:
              IF GPHHGT<0 GPHHGT=GPHHGT+1
              FOR J1=31 TO (31+(ABS(GPHHGT)*INCR)) STEP  INCR
                   IF J1=32 THEN GOTO NEXT1:
                   GRAPH$(J1,1)=STAR$
              NEXT1:  NEXT J1
        SKIP1:        COUNT=0
                      FOR J=2  TO 16
                          COUNT=COUNT+5
                          IF COUNT=40 THEN COUNT=COUNT + 5
                          GPHHGT=INT(WDCOEFF(J)/0.025)
                          IF ABS(GPHHGT)>30 GPHHGT=30*SGN(GPHHGT)
                          INCR=SGN(GPHHGT)*-1
                          IF GPHHGT=0 THEN GO TO SKIP2:
                          IF GPHHGT<0 GPHHGT=GPHHGT+1
                          FOR J1=31 TO (31+(ABS(GPHHGT)*INCR)) STEP  INCR
                              IF J1=32 THEN GOTO NEXT2:
                              GRAPH$(J1,COUNT)=STAR$
              NEXT2:          NEXT J1
              SKIP2:  NEXT J
                FOR I=1 TO 61
                     FOR J=1 TO 79
                          PRINT USING "!",GRAPH$(I,J);
                     NEXT J
                PRINT USING "!",GRAPH$(I,80)
                NEXT I
                RETURN
!*****************************************************************************
!
!               SUBROUTINE CLOSE'FILE
!
!*****************************************************************************
!
CLOSE'FILE: UNI=12
            ON A1 GOTO PCB'CLS,STAT'CLS

   PCB'CLS: IF FLAGC=1 GOTO OPN'PCB
            INPUT "PCB FILE NUMBER? ",PCBNUM
```

```
 OPN'POD: PODSTAT$="DSK1:POD"+PODNUM+".DAT[204,1]"
          LOOKUP PODSTAT$,RESULT
          IF RESULT=0 AND G1#2 PRINT CHR$(007):INPUT "MOUNT OTHER &
TA DISK, OR TO CONTINUE... ",DUMMY
          XCALL XMOUNT,"DSK1:"
          OPEN #1,PODSTAT$,OUTPUT
          PRINT #1,START
          FOR III=1 TO MAXWEATHER-1
              PRINT #1,III:POD(III)
          NEXT III
          FLAG3=0
          CLOSE #1:RETURN

 STAT'PL1:IF FLAG3=2 ENDWRITE=I ELIE ENDWRITE=MAXWEATHER
          IF FLAG3>=2 GOTO OPN'STAT
          INPUT "STATION FILE NUMBER? ",STATNUM
 OPN'STAT:METSTAT$="DSK1:MET"+STATNUM+".DAT[204,1]"
          LOOKUP METSTAT$,RESULT
          IF RESULT=0 AND G1#2 PRINT CHR$(007):INPUT "MOUNT OTHER DATA &
SK, OR TO CONTINUE...",DUMMY
          XCALL XMOUNT,"DSK1:"
          OPEN #1,METSTAT$,OUTPUT
          FOR III=1 TO ENDWRITE
              PRINT #1,III
              FOR JJJ=1 TO 24
                  PRINT #1, JJJ,STATION(III,JJJ,1),STATION(III,JJJ,2), &
                        STATION(III,JJJ,3)
              NEXT JJJ
          NEXT III
          FLAG3=0
          CLOSE #1:RETURN

*****************************************************************************

              SUBROUTINE RETRIEVE

*****************************************************************************

TRIEVE:   WMI=13
          IF FLAG2=1 A1=1:PODNUM=A2:GOTO OPN1POD
          IF FLAG2>=2 A1=2:STATNUM=A2:GOTO OPN2STAT
RETRIEVE1:INPUT "RETRIEVE POD (1) OR STATION (2) DATA, OR QUIT (3)? ",B1
          IF B1=3 RETURN ELSE A1=B1

          ON A1 GOTO POD'OPN,STAT'OPN
          GOTO RETRIEVE1

 POD'OPN: INPUT "POD FILE NUMBER? ",PODNUM
 OPN1POD: PODSTAT$="DSK1:POD"+PODNUM+".DAT[204,1]"
          LOOKUP PODSTAT$,RESULT
          IF RESULT=0 AND G1#2 PRINT CHR$(007):INPUT "MOUNT OTHER DATA &
SK, OR TO CONTINUE...",DUMMY
          XCALL XMOUNT,"DSK1:"
          OPEN #1,PODSTAT$,INPUT
          INPUT #1,START
          FOR III=1 TO MAXWEATHER-1
              INPUT #1,DUMMY,POD(III)
          NEXT III
```

```
            CLOSE #1
            IF FLAG2#0 FLAG2=0:RETURN
            GOTO RETRIEVE1

 STAT'OPN:INPUT "STATION FILE NUMBER? ",STATNUM
   OPNSTAT:IF FLAG2=3 ENDWRITE=STARTDAY-1 ELSE ENDWRITE=MAXWEATHER
            METSTAT$="DSK1:MET"+STATNUM$+".DAT[204,1]"
            LOOKUP METSTAT$,RESULT
            IF RESULT=0 AND D1#2 PRINT CHR$(007):INPUT "MOUNT OTHER DATA &
DISK, CR TO CONTINUE...",DUMMY
            XCALL XMOUNT,"DSK1:"
            OPEN #1,METSTAT$,INPUT
            FOR III=1 TO ENDWRITE
                INPUT #1,DUMMY
                FOR JJJ=1 TO 24
                    INPUT #1,DUMMY,STATION(III,JJJ,1),STATION(III,JJJ,2) &
                          ,STATION(III,JJJ,3)
                NEXT JJJ
            NEXT III
            CLOSE #1
            IF FLAG2#0 FLAG2=0:RETURN
            GOTO RETRIEVE1

!*************************************************************************
!
!      ERROR TRAPPING ROUTINE - CONTROL TO HERE IN ERROR, THEN GOES TO START
!
!*************************************************************************

ERROR1:         PRINT CHR$(007)
                PRINT USING "ERROR CODE ### ",ERR(0)
                PRINT USING "ERROR OCURRED IN SUBROUTINE \############\", &
                      WMI$(WMI);
                PRINT "MEMORY: ";MEM(0)
                PRINT USING "I= ###, J= ##, K= ### ",I,J,K
                PRINT USING "I1= ### , J1= ###",I1,J1
                PRINT USING "FLAG1= ##, FLAG2= ##, FLAG3= ##",FLAG1,FLAG2,FLAG3
                 PRINT "SANDY: ";SANDY
                PRINT USING "MET FILE NAME: \##########\",METSTAT$
                PRINT USING "FCB FILE NAME: \##########\",FCBSTAT$
                PRINT CHR$(007)
                INPUT "CR TO CONTINUE...",DUMMY
                RESUME DECISION1
FIDLE:                  CALL RETRIEVE

                        FOR I=21 TO 23
                        FOR J=1 TO 24
                            STATION(I,J,1)=STATION(I,J,1)/10
                        NEXT J
                        NEXT I


                        CALL CLOSE'FILE

                        RETURN
```

APPENDIX 3

COMPUTER PROGRAM OUTPUT

(Sampling Stations Listed in Alphabetic Order)

CORRELATION COEFFICIENTS

PCB STATION: DUP-S-01 MET. STATION: MOE-20024

NUMBER OF VALID DAYS: 25

PCB CONCENTRATION VS WIND DIRECTION

	WIND DIRECTION							
	N	NNW	NW	WNW	W	WSW	SW	SSW
r	0.2958	-0.3712	-0.1369	0.4824	0.6127	0.8449	-0.0171	-0.0710
SLOPE	0.1641	-0.0858	-0.1080	0.3622	0.5963	0.7152	-0.0280	-0.0408
t	1.5171	-1.7171	-0.6629	2.2977	3.8164	7.5725	-0.0818	-0.3427
SIG		90%		95%	99%	99%		

	S	SSE	SE	ESE	E	ENE	NE	NNE
r	0.1207	-0.2513	-0.1657	-0.0149	0.2071	0.0412	-0.0101	-0.0701
SLOPE	0.0072	-0.0353	-0.0459	-0.0195	0.0677	0.0711	-0.0093	-0.0451
t	0.1077	-1.2452	-0.9057	-0.2153	1.0153	0.2939	-0.0867	-0.3806
SIG								

PCB CONCENTRATION VS WIND SPEED

	WIND SPEED (KM/HR)				
	0 - 5	5 - 10	10 - 15	15 - 20	>20
r	0.2825	0.0596	0.0241	-0.0874	-0.2678
SLOPE	0.0624	0.0149	0.0116	-0.0305	-0.0546
t	1.4122	0.2855	0.1156	-0.4205	-1.3232
SIG					

PCB CONCENTRATION VS AVERAGE TEMPERATURE:

r	0.0515
SLOPE	0.0523
t	0.2475
SIG	

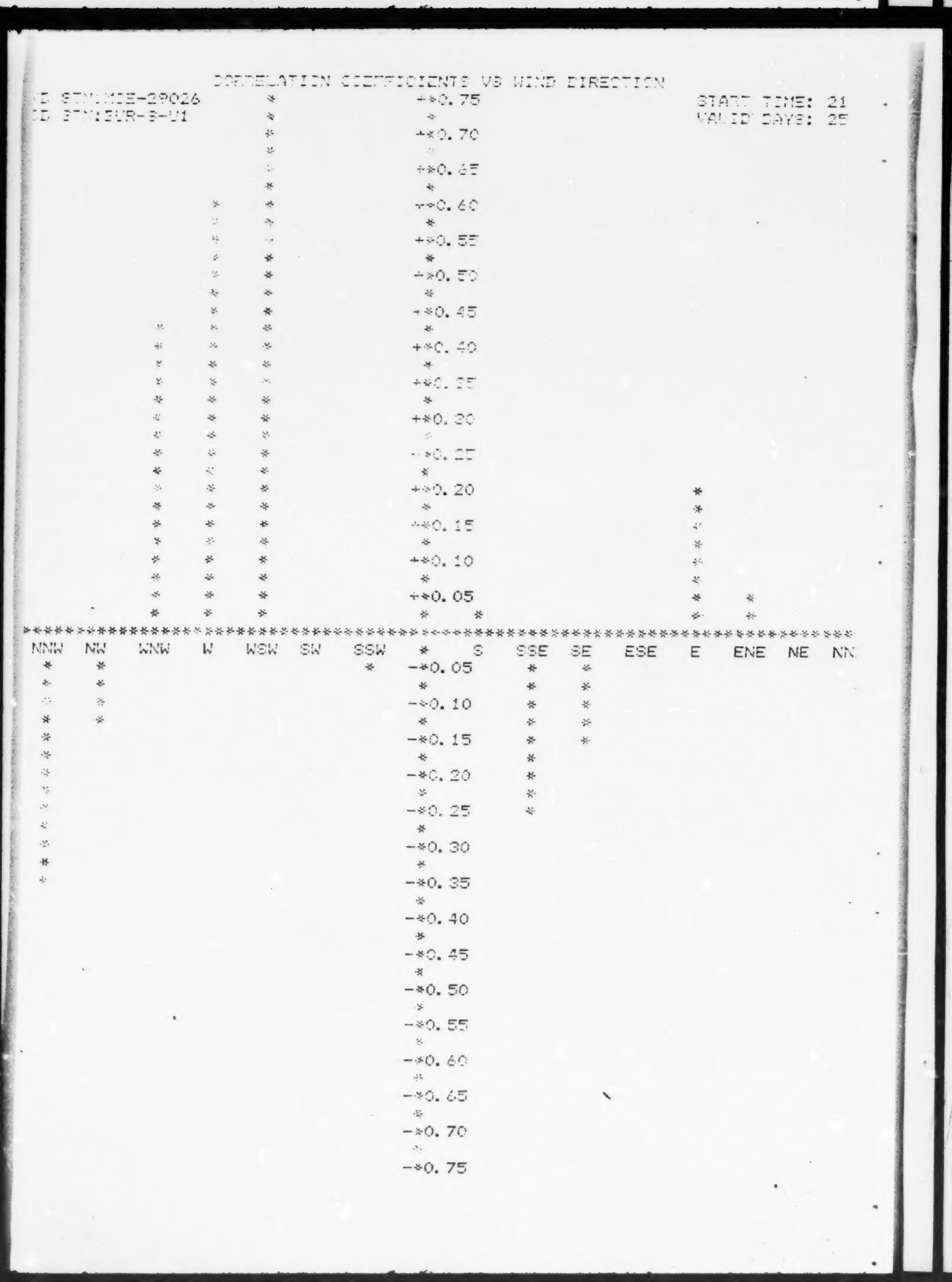
PCB CONCENTRATION VS STD DEV TEMPERATURE:

r	-0.0711
SLOPE	-0.3663
t	-0.3417
SIG	

CORRELATION COEFFICIENTS VS WIND DIRECTION

ID STN:MIE-29026
ID STN:SUR-3-U1

START TIME: 21
VALID DAYS: 25



CORRELATION COEFFICIENTS

AIR STATION: LAM-S-I1 MET. STATION: NOE-29024

NUMBER OF VALID DAYS: 24

PCB CONCENTRATION VS WIND DIRECTION

			WIND DIRECTION					
	N	NNW	NW	WNW	W	WSW	SW	SSW
r	0.3160	-0.0727	-0.0482	0.2815	0.1895	0.0712	0.3111	0.0727
SLOPE	0.1715	-0.0283	-0.0553	0.1148	0.1769	0.0807	0.2325	0.0420
t	1.6318	-0.3573	-0.2365	1.3217	0.9453	1.3055	2.0942	0.3573
SIG							95%	

	S	SSE	SE	ESE	E	ENE	NE	NNE
r	0.0844	-0.1929	-0.0904	0.1593	-0.1196	-0.1333	-0.0348	-0.1113
SLOPE	0.0283	-0.0710	-0.0264	0.0723	-0.0574	-0.0821	-0.0194	-0.0813
t	0.4149	-0.9632	-0.4447	0.7930	-0.9481	-0.6868	-0.1706	-0.5497
SIG								

PCB CONCENTRATION VS WIND SPEED

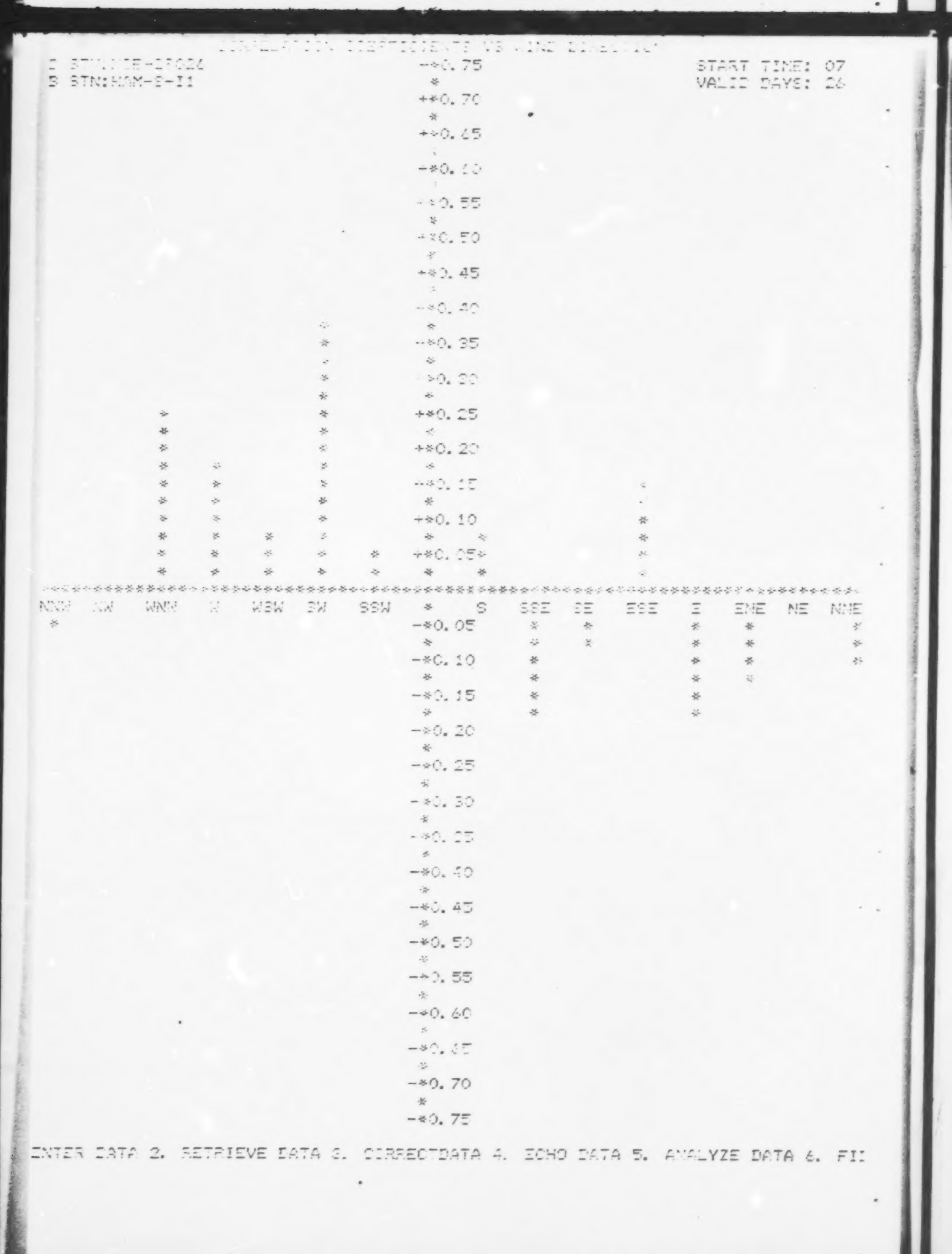
	WIND SPEED (KM/HR)				
	0 - 5	5 - 10	10 - 15	15 - 20	>20
r	0.3116	0.1667	0.2997	-0.2075	-0.4617
SLOPE	0.0739	0.0461	0.1557	-0.0800	-0.1108
t	1.6066	0.8283	1.5390	-1.0392	-2.5499
SIG					95%

PCB CONCENTRATION VS AVERAGE TEMPERATURE:

r	0.0662
SLOPE	0.0712
t	0.3248
SIG	

PCB CONCENTRATION VS STD DEV TEMPERATURE:

r	0.0593
SLOPE	0.3619
t	0.2913
SIG	


CORRELATION COEFFICIENT VS WIND DIRECTION
E STN:KIB-12024
B STN:HAM-E-I1
START TIME: 07
VALID DAYS: 26
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
NNW NW WNW W WSW SW SSW S SSE SE ESE E ENE NE NNE
ENTER DATA 2. RETRIEVE DATA 3. CORRECTDATA 4. ECHO DATA 5. ANALYZE DATA 6. FI:

CORRELATION COEFFICIENTS

PCB STATION: HAM-S-12 MET. STATION: MCE-29024

NUMBER OF VALID DAYS: 27

PCB CONCENTRATION VS WIND DIRECTION

	WIND DIRECTION							
	N	NNW	NW	WNW	W	WSW	SW	SSW
r	0.7621	-0.0010	0.1681	0.5093	0.5299	0.1424	-0.0820	-0.1615
SLOPE	0.3361	-0.0003	0.1478	0.4504	0.4991	0.1107	-0.0981	-0.1825
t	5.1535	-0.0047	0.8179	2.8384	2.9745	0.6907	-0.3948	-0.7849
SIG	99%			99%	99%			

	S	SSE	SE	ESE	E	ENE	NE	NNE
	0.0728	-0.1704	-0.3172	0.0062	-0.0012	-0.1304	0.1706	0.0726
SLOPE	0.0228	-0.0519	-0.0759	0.0022	-0.0764	-0.0521	0.0855	0.0425
t	0.3499	-0.8293	-1.6029	1.0295	-1.5147	-0.6310	0.9910	0.3490
SIG								

PCB CONCENTRATION VS WIND SPEED

	WIND SPEED (MI/HR)				
	0 - 5	5 - 10	10 - 15	15 - 20	>20
r	0.6204	0.0764	-0.0813	-0.3898	-0.3945
SLOPE	1.1225	0.0189	-0.0821	-0.1245	-0.0770
t	3.7939	0.3676	-0.3935	-2.0301	-2.0591
SIG	99%			90%	90%

PCB CONCENTRATION VS AVERAGE TEMPERATURE:

r	0.2656
SLOPE	0.2387
t	1.3212
SIG	

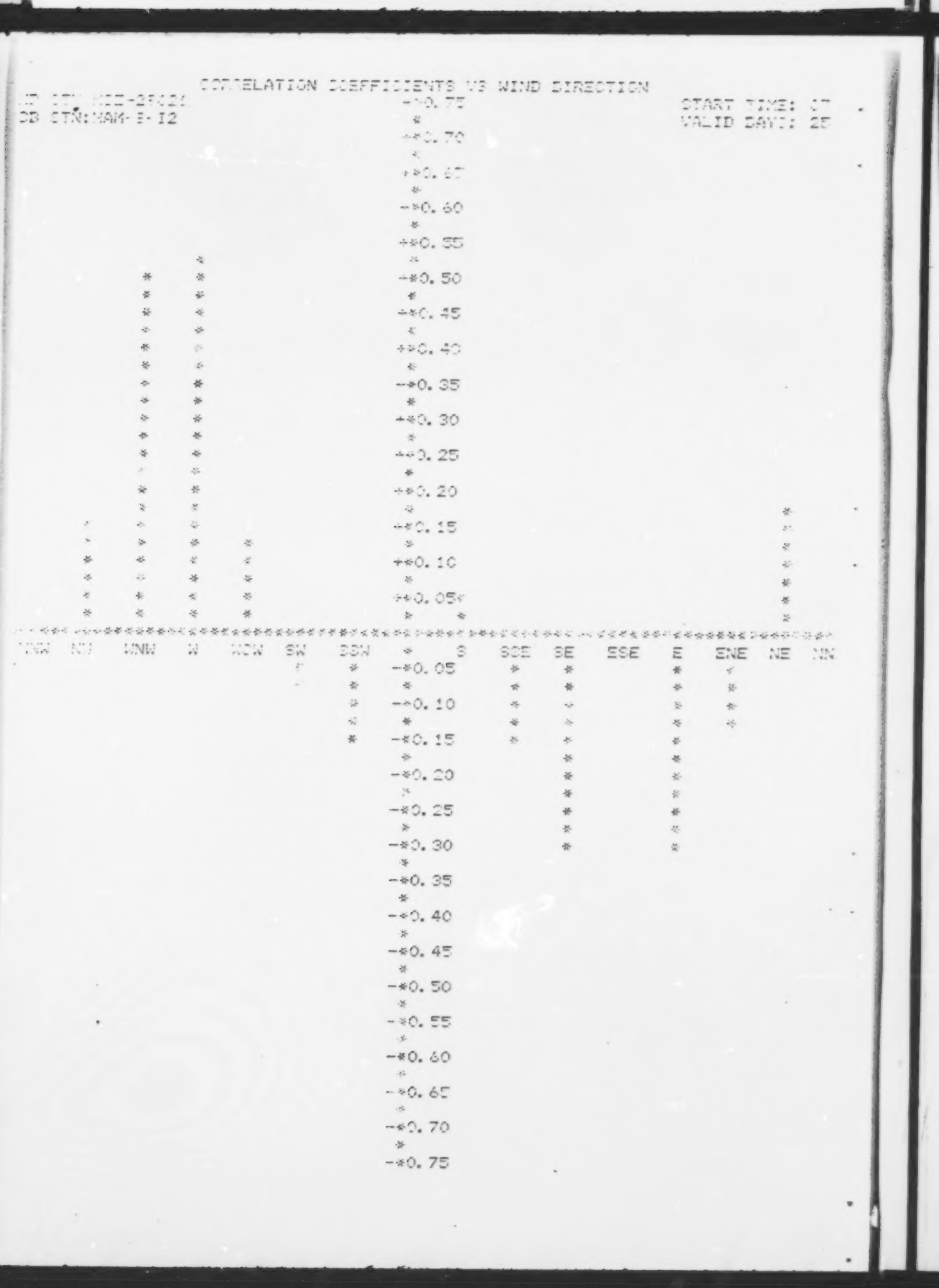
PCB CONCENTRATION VS STD DEV TEMPERATURE:

r	0.1025
SLOPE	0.5093
t	0.4941
SIG	

CORRELATION COEFFICIENTS VS WIND DIRECTION

ID ITL: HIE-21121
DB STN: HAM-3-12

START TIME: 17
VALID DAYS: 25



CORRELATION COEFFICIENTS

SITE STATION: HAM-6-U1 MET. STATION: MCE-29026

NUMBER OF VALID DAYS: 25

PCB CONCENTRATION VS WIND DIRECTION

	WIND DIRECTION							
	N	NNW	NW	WNW	W	WSW	SW	SSW
r	0.7217	-0.1344	0.1613	0.4599	0.5436	0.3327	0.1250	-0.0643
SLOPE	0.3665	-0.0339	0.1539	0.3526	0.4510	0.3033	0.2716	-0.0328
t	5.0143	-0.6500	0.7836	2.4841	3.1062	1.6917	0.6043	-0.3091
SIG	99%			95%	99%			

	S	SSE	SE	ESE	E	ENE	NE	NNE
r	0.1002	-0.2781	-0.3450	-0.0412	-0.2122	-0.1047	0.1227	0.0470
SLOPE	0.0316	-0.0912	-0.0962	-0.0170	-0.0597	-0.0549	0.0616	0.0203
t	0.5219	-1.3886	-1.0799	-0.1977	-1.0410	-0.5049	0.5931	0.2257
SIG			90%					

PCB CONCENTRATION VS WIND SPEED

	WIND SPEED (KM/HR)				
	0 - 5	5 - 10	10 - 15	15 - 20	>20
r	0.3898	-0.0453	-0.0038	-0.4231	-0.3792
SLOPE	0.1517	-0.0132	-0.0017	-0.1498	-0.0809
t	4.5191	-0.2174	-0.0181	-2.2395	-1.9652
SIG	99%			95%	90%

PCB CONCENTRATION VS AVERAGE TEMPERATURE:

r	0.2065
SLOPE	0.2040
t	1.0124
SIG	

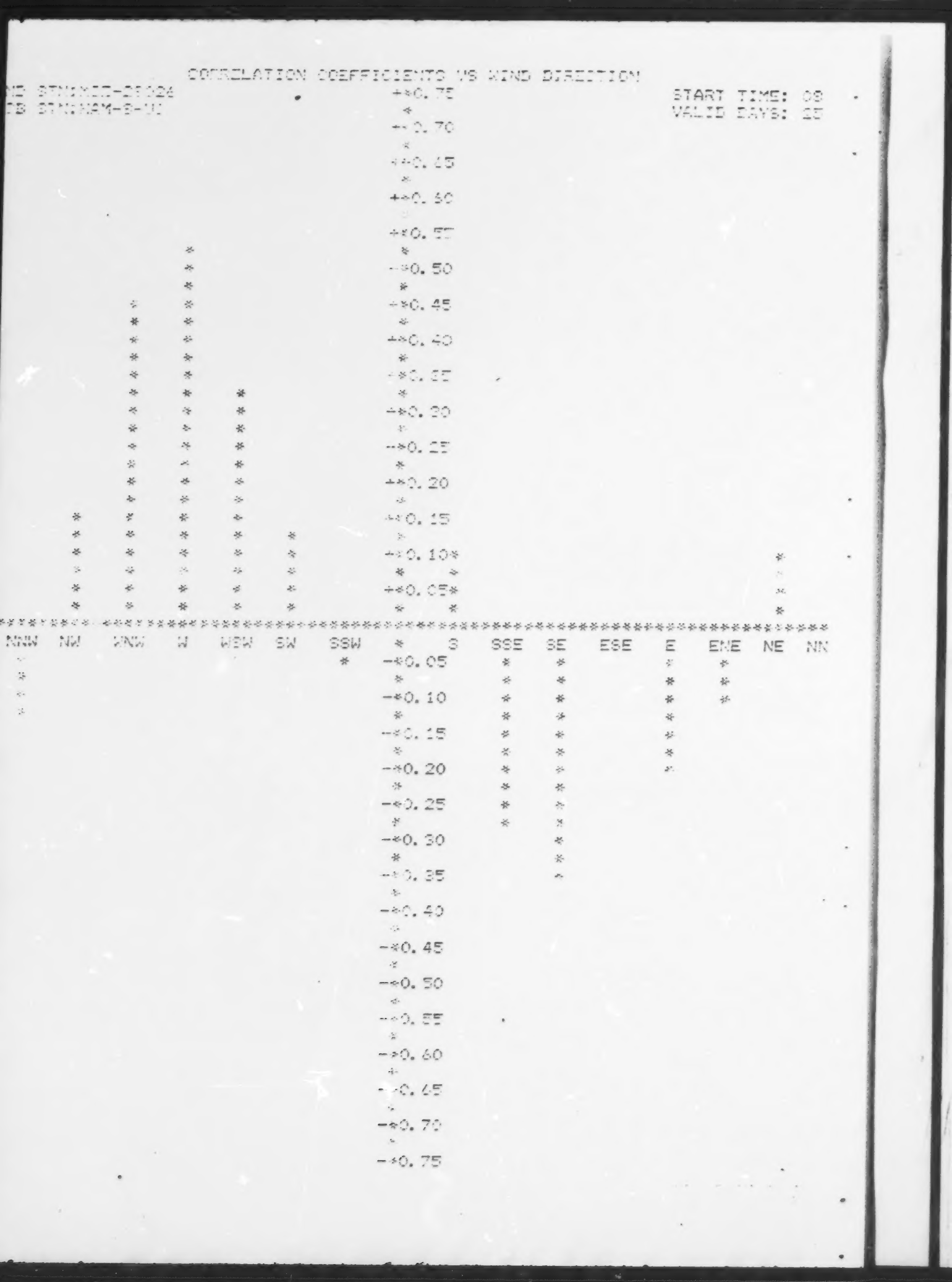
PCB CONCENTRATION VS STD DEV TEMPERATURE:

r	0.0185
SLOPE	0.1057
t	0.0889
SIG	

CORRELATION COEFFICIENTS VS WIND DIRECTION

NO STN:MID-21024
08 STN:MAM-8-U

START TIME: 08
VALID DAYS: 25



CORRELATION COEFFICIENTS

PCB STATION: MIM-S-UC

MET. STATION: MSE-29026

NUMBER OF VALID DAYS: 26

PCB CONCENTRATION VS WIND DIRECTION

	WIND DIRECTION							
	N	NNW	NW	WNW	W	WSW	SW	SSW
r	-0.0935	-0.0634	-0.1541	-0.0139	-0.0035	-0.0951	-0.0977	-0.0617
SLOPE	-0.1328	-0.0450	-0.4119	-0.0300	-0.0129	-0.2437	-0.3606	-0.0886
t	-0.4601	-0.3123	-0.7653	-0.0682	-0.0271	-0.4492	-0.4811	-0.3029
SIG								

	S	SSE	SE	ESE	E	ENE	NE	NNE
r	-0.1304	0.5364	0.2755	-0.1530	-0.1337	-0.1203	-0.0167	-0.0065
SLOPE	-0.1080	0.4982	0.2103	-0.1712	-0.1551	-0.1770	-0.0232	-0.0124
t	-0.6446	2.1131	1.1039	-0.7587	-0.6134	-0.5931	-0.0817	-0.0335
SIG		99%						

PCB CONCENTRATION VS WIND SPEED

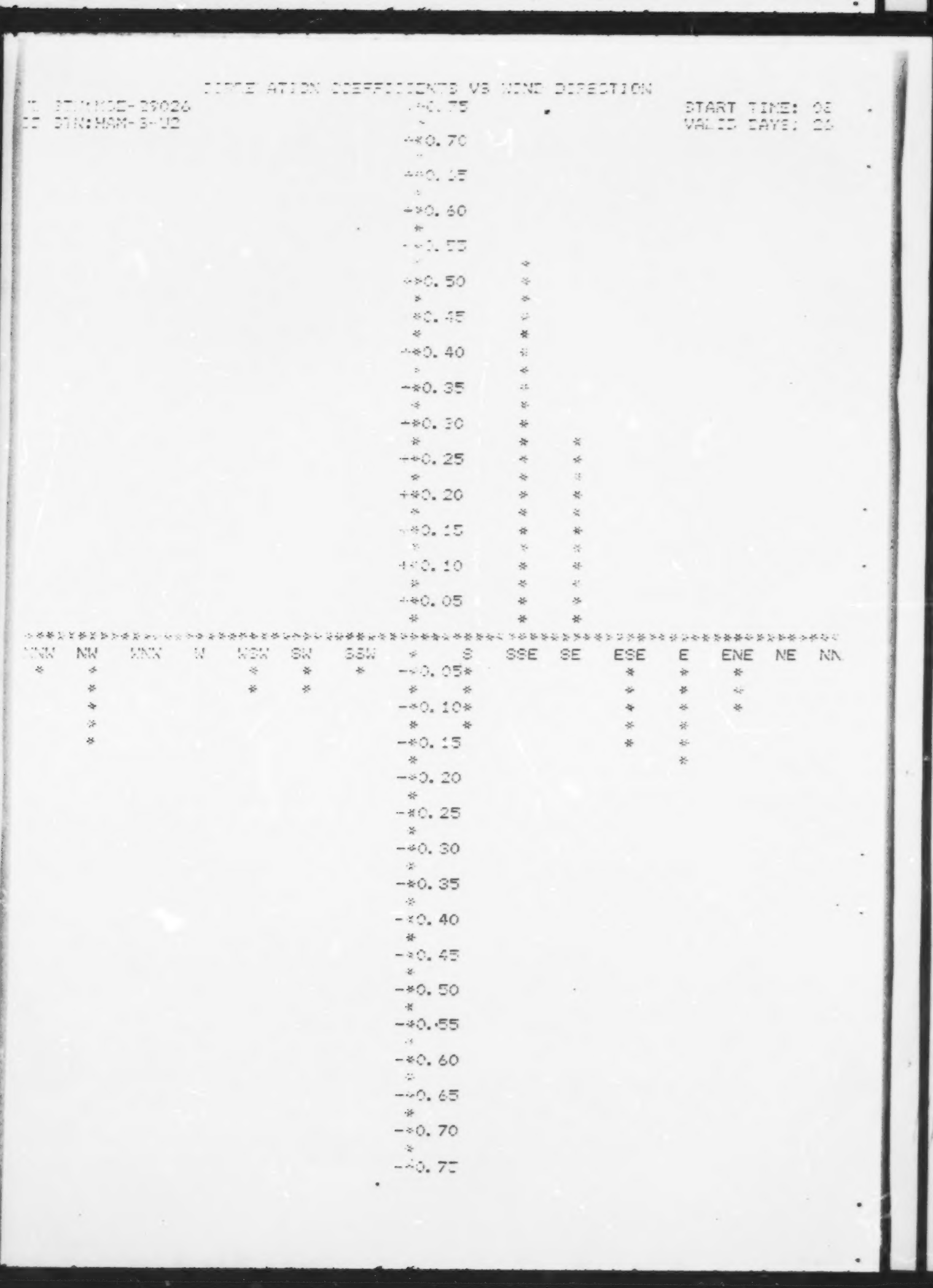
	WIND SPEED (KM/HR)				
	0 - 5	5 - 10	10 - 15	15 - 20	>20
r	-0.0453	-0.2067	-0.4222	-0.2502	0.5517
SLOPE	-0.0282	-0.1455	-0.5256	-0.2548	0.3323
t	-0.2220	-1.0352	-2.2819	-1.2661	3.2402
SIG			95%		99%

PCB CONCENTRATION VS AVERAGE TEMPERATURE:

r	0.3024
SLOPE	0.8118
t	1.5531
SIG	

PCB CONCENTRATION VS STD DEV TEMPERATURE:

r	-0.1943
SLOPE	-2.8564
t	-0.9185
SIG	


PROPAGATION COEFFICIENTS VS WIND DIRECTION
I DTN:KSE-19026
II DTN:MSM-3-J2
START TIME: 08
VALID DATE: 04
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
NNW NW NNW W WSW SW SSW S SSE SE ESE E ENE NE NN
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
0.55
0.60
0.65
0.70
0.75

CORRELATION COEFFICIENTS

PCB STATION: MIN-S-U1 MET. STATION: AES- MINT

NUMBER OF VALID DAYS: 24

PCB CONCENTRATION VS WIND DIRECTION

	WIND DIRECTION							
	N	NNW	NW	WNW	W	WSW	SW	SSW
r	0.2596	-0.1219	0.1512	-0.2005	0.1317	-0.0708	0.0359	0.1261
SLOPE	0.0963	-0.0284	0.0472	-0.0654	0.0578	-0.0859	0.0531	0.0304
t	1.2410	-0.5761	0.7174	-0.9597	0.6471	-0.3331	0.1633	0.5962
SIG								

	S	SSE	SE	ESE	E	ENE	NE	NNE
r	0.1135	0.0436	0.0778	-0.1389	-0.2572	0.1907	-0.2087	-0.2162
SLOPE	0.0131	0.0105	0.0258	-0.0394	-0.0476	0.0349	-0.0841	-0.0925
t	1.8359	0.2047	0.3659	-0.6577	-1.2485	0.9110	-1.0008	-1.0387
SIG								

PCB CONCENTRATION VS WIND SPEED

	WIND SPEED (KM/HR)				
	0 - 5	5 - 10	10 - 15	15 - 20	>20
r	0.3978	-0.0679	-0.3995	-0.2705	0.0970
SLOPE	0.0850	-0.0121	-0.0383	-0.1148	0.0099
t	2.0335	-0.3192	-2.0442	-1.3180	0.4571
SIG	90%		90%		

PCB CONCENTRATION VS AVERAGE TEMPERATURE:

r	0.0404
SLOPE	0.0046
t	0.2838
SIG	

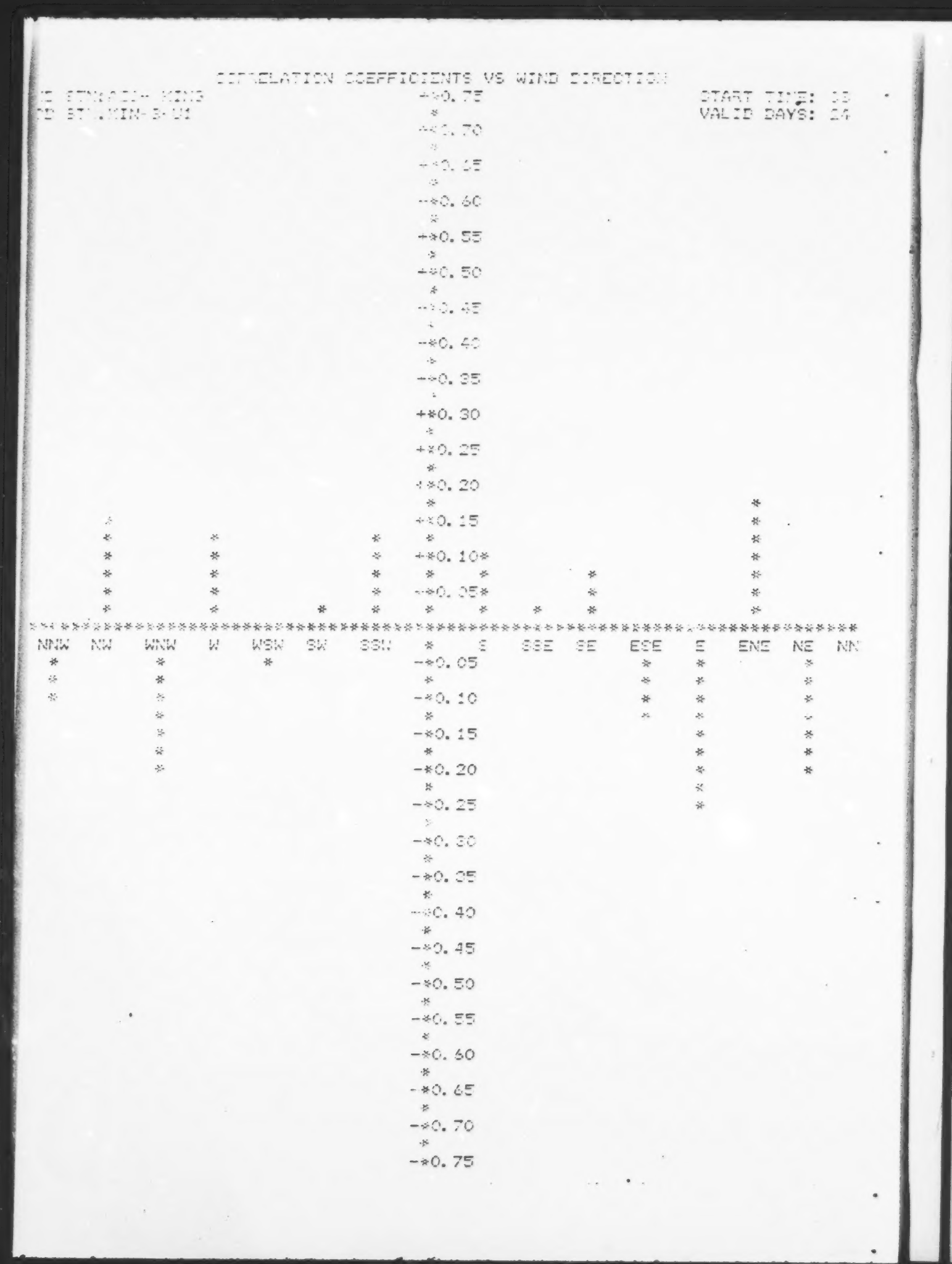
PCB CONCENTRATION VS STD DEV TEMPERATURE:

r	-0.0734
SLOPE	-0.2513
t	-0.3491
SIG	

CORRELATION COEFFICIENTS VS WIND DIRECTION

E STATION WIND
D STA.MIN-3-01

START TIME: 13
VALID DAYS: 24



CORRELATION COEFFICIENTS

PCB STATION: LON-8-11 MET. STATION: AES-- LOND

NUMBER OF VALID DAYS: 15

PCB CONCENTRATION VS WIND DIRECTION

	WIND DIRECTION							
	N	NNW	NW	WNW	W	WSW	SW	SSW
r	0.3625	0.2424	0.2489	0.3447	0.1954	0.3767	-0.0370	-0.0106
SLOPE	0.2403	0.2115	0.5234	0.9293	0.0522	0.2197	-0.0498	-0.0053
t	1.5557	0.9909	1.0274	1.4687	0.7970	1.6215	-0.1479	-0.0423
SIG								

	S	SSE	SE	ESE	E	ENE	NE	NNE
r	0.1489	0.0438	-0.2064	-0.0770	-0.2976	-0.3098	0.0429	-0.0840
SLOPE	0.0491	0.0112	-0.0692	-0.0193	-0.0878	-0.0981	0.0545	-0.1247
t	0.1955	0.1754	-0.8437	-0.3091	-1.2470	-1.2985	0.1717	-0.3373
SIG								

PCB CONCENTRATION VS WIND SPEED

	WIND SPEED (KM/HR)				
	0 - 5	5 - 10	10 - 15	15 - 20	>20
r	0.0710	0.3191	0.1910	-0.0953	-0.3011
SLOPE	0.0176	0.0776	0.0623	-0.0429	-0.0456
t	0.2967	1.3423	0.7785	-0.3830	-1.2630
SIG					

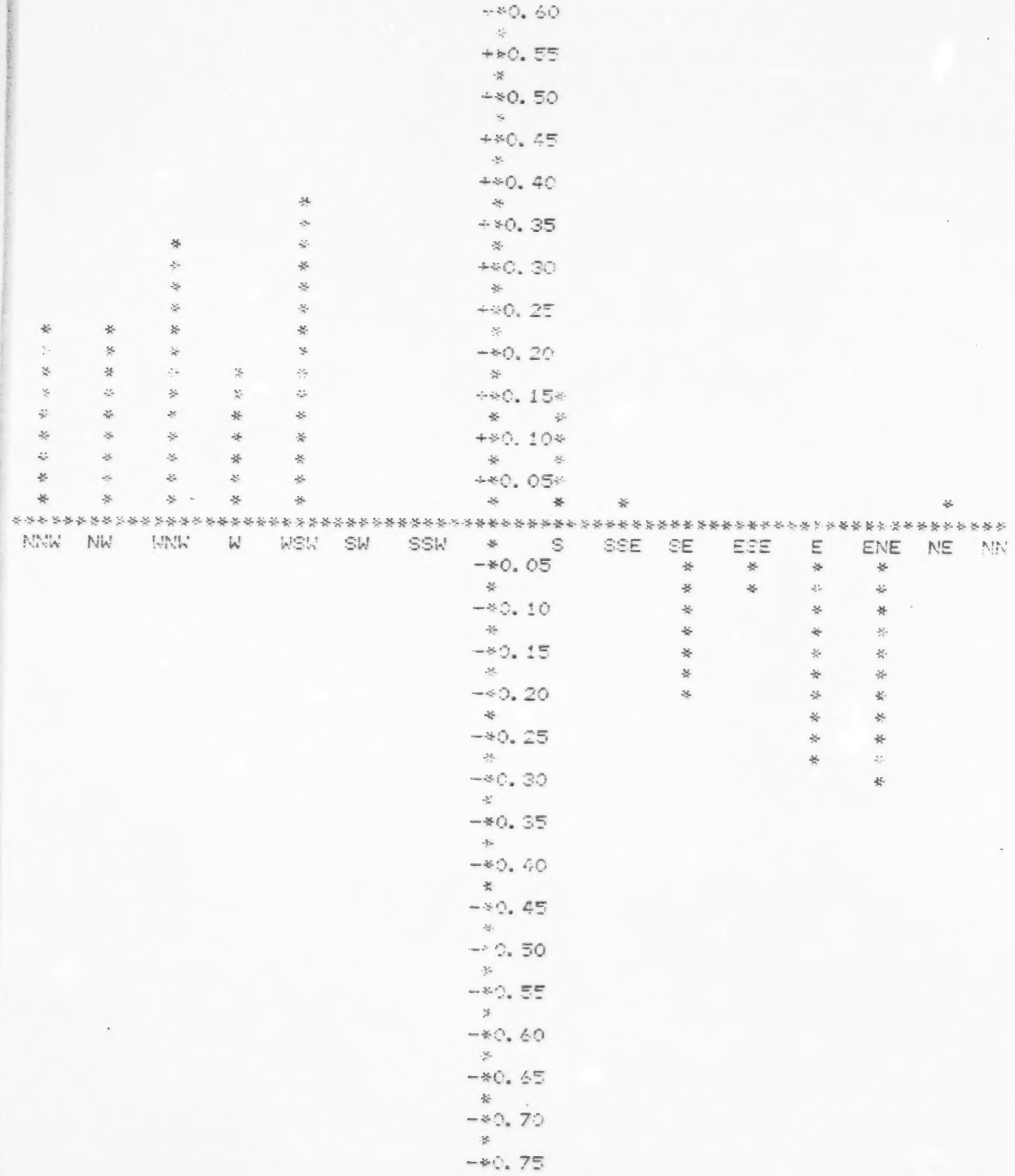
PCB CONCENTRATION VS AVERAGE TEMPERATURE:	r	0.4046
	SLOPE	0.3377
	t	1.7696
	SIG	90%

PCB CONCENTRATION VS STD DEV TEMPERATURE:	r	-0.1239
	SLOPE	-0.4967
	t	-0.4996
	SIG	

CORRELATION COEFFICIENTS VS WIND DIRECTION

E STANDARD LOND
EE STN.LEW-S-U1

START TIME: 20
VALID DAYS: 18



CORRELATION COEFFICIENTS

PCB STATION: MIS-S-U1 MET. STATION: MOE-85039

NUMBER OF VALID DAYS: 24

PCB CONCENTRATION VS WIND DIRECTION

	WIND DIRECTION							
	N	NNW	NW	WNW	W	WSW	SW	SSW
r	0.2094	-0.0125	0.0424	0.0008	-0.2945	0.0122	0.1261	0.7306
SLOPE	0.0638	-0.0074	0.0423	0.0006	-0.0625	0.0046	0.1000	0.4902
t	1.0044	-0.0588	0.1990	0.0037	-1.4454	0.0571	0.5944	5.0183
SIG								99%

	S	SSE	SE	ESE	E	ENE	NE	NNE
r	0.5133	-0.0455	-0.2863	-0.1776	-0.0137	-0.0471	-0.0998	0.0728
SLOPE	0.1572	-0.0134	-0.1389	-0.0647	-0.0047	-0.0208	-0.0241	0.0317
t	2.9051	-0.2134	-1.4047	-0.8464	-0.0644	-0.2213	-0.4704	0.3424
SIG	95%							

PCB CONCENTRATION VS WIND SPEED

	WIND SPEED (KM/HR)				
	0 - 5	5 - 10	10 - 15	15 - 20	>20
r	0.2650	-0.1669	-0.0348	-0.2510	0.0317
SLOPE	0.0471	-0.0369	-0.0100	-0.0946	0.0205
t	1.2089	-0.7738	-0.1633	-1.2161	0.1485
SIG					

PCB CONCENTRATION VS AVERAGE TEMPERATURE:

r	0.3772
SLOPE	0.3566
t	1.9103
SIG	90%

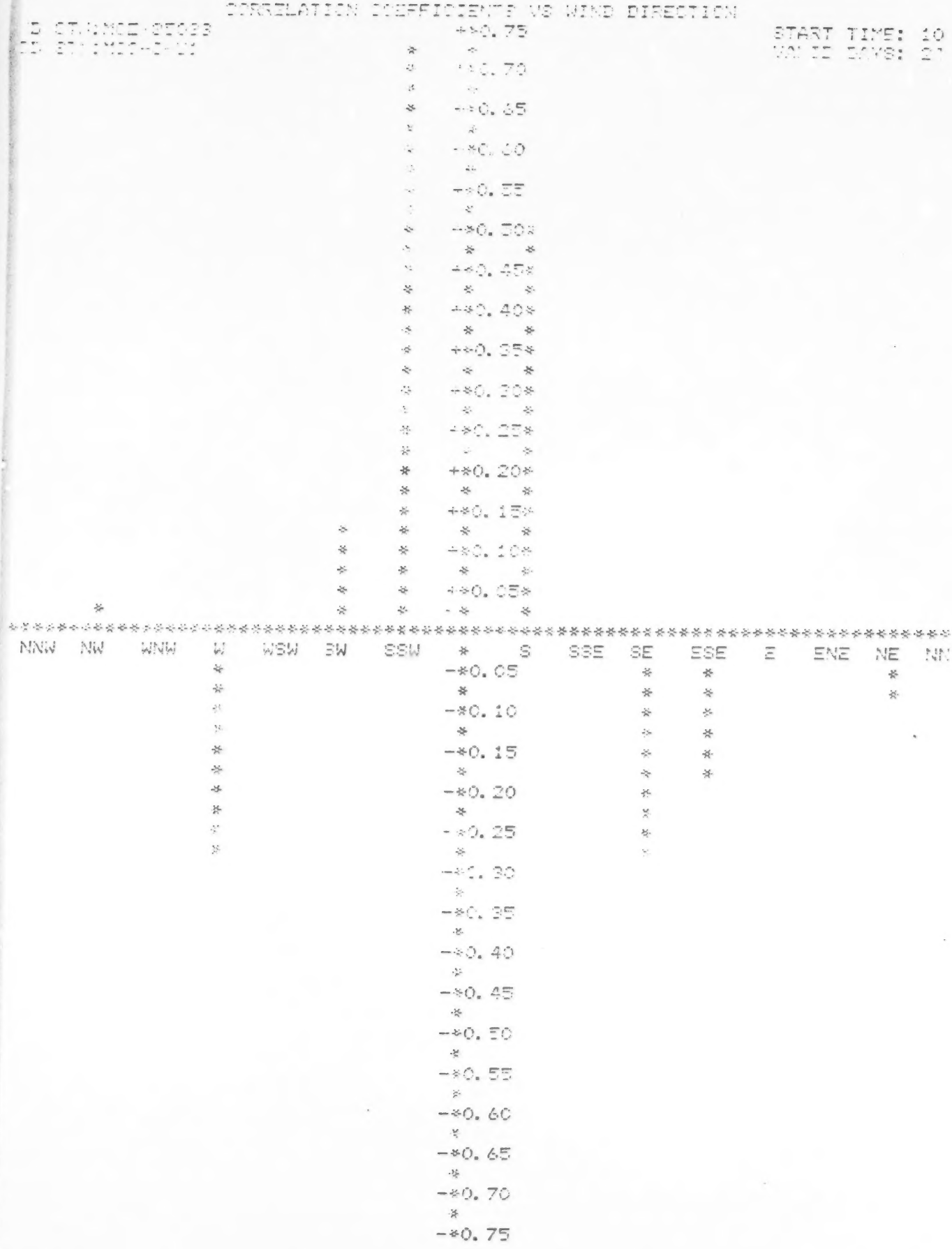
PCB CONCENTRATION VS STD DEV TEMPERATURE:

r	0.0824
SLOPE	0.3375
t	0.3890
SIG	

CORRELATION COEFFICIENTS VS WIND DIRECTION

D STATION:05023
D STATION-2-D

START TIME: 10
VALID DAYS: 2



CORRELATION COEFFICIENTS

PCB STATION: MIS-S-U2 MET. STATION: MOE-[illegible]

NUMBER OF VALID DAYS: 27

PCB CONCENTRATION VS WIND DIRECTION

	WIND DIRECTION							
	N	NNW	NW	WNW	W	WSW	SW	SSW
r	0.1722	-0.1291	-0.1151	-0.0338	-0.3041	-0.1594	-0.1229	0.5298
SLOPE	0.0579	-0.0760	-0.1102	-0.0261	-0.0854	-0.0624	-0.1005	0.3423
t	0.8985	-0.6244	-0.5557	-0.1624	-1.5307	-0.7745	-0.5905	2.9754
SIG								99%

	S	SSE	SE	ESE	E	ENE	NE	NNE
r	0.6121	-0.0003	-0.1503	-0.1216	0.0390	0.2063	-0.0496	-0.0020
SLOPE	0.2056	-0.0001	-0.0753	-0.0391	0.0171	0.1407	-0.0124	-0.0010
t	3.7125	-0.0017	-0.7292	-0.5873	0.1325	1.0213	-0.2389	-0.0112
SIG	99%							

PCB CONCENTRATION VS WIND SPEED

	WIND SPEED (KM/HR)				
	0 - 5	5 - 10	10 - 15	15 - 20	>20
r	0.0648	-0.0576	0.0586	-0.1148	0.0129
SLOPE	0.0112	-0.0126	0.0174	-0.0417	0.0066
t	0.3112	-0.2768	0.2816	-0.5639	0.0616
SIG					

PCB CONCENTRATION VS AVERAGE TEMPERATURE:

r	0.0919
SLOPE	0.0435
t	1.9218
SIG	90%

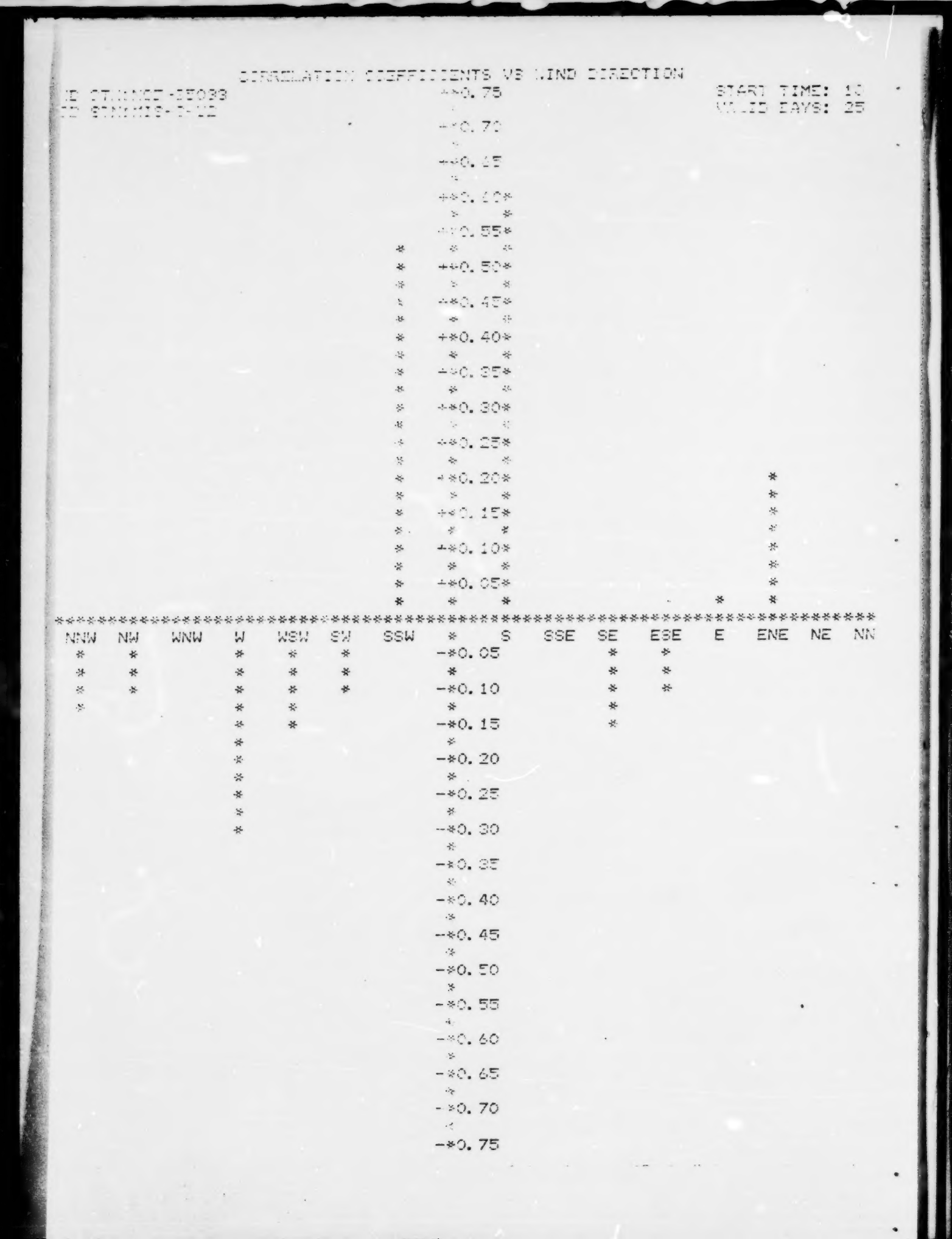
PCB CONCENTRATION VS STD DEV TEMPERATURE:

r	0.1799
SLOPE	0.7478
t	0.8772
SIG	

CIRCULATION COEFFICIENTS VS WIND DIRECTION

IE STATION-15033
ID STATION-1-12

START TIME: 10
VALID DAYS: 25



CORRELATION COEFFICIENTS

PCB STATION: MIS-8-US MET. STATION: MOS-99999

NUMBER OF VALID DAYS: 25

PCB CONCENTRATION VS WIND DIRECTION

	WIND DIRECTION							
	N	NNW	NW	WNW	W	WSW	SW	SSW
r	0.2654	0.1981	0.2539	0.0018	-0.3110	-0.1617	0.1086	0.5692
SLOPE	0.1165	0.1547	0.3614	0.0018	-0.0978	-0.0905	0.1260	0.4884
t	1.3203	0.9720	1.2591	0.0084	-1.5693	-0.7857	0.5241	3.3205
SIG								99%

	S	SSE	SE	ESE	E	ENE	NE	NNE
r	0.5517	-0.0146	-0.2070	-0.2442	0.0686	0.0133	-0.1703	-0.0785
SLOPE	0.4077	-0.0065	-0.1473	-0.1310	0.0496	0.0129	-0.0609	-0.0511
t	3.1724	-0.0701	-1.0145	-1.2076	0.3300	0.0639	-0.8287	-0.3775
SIG	99%							

PCB CONCENTRATION VS WIND SPEED

	WIND SPEED (KM/HR)				
	0 - 5	5 - 10	10 - 15	15 - 20	>20
r	0.2094	0.0517	-0.1781	-0.3142	0.0397
SLOPE	0.0555	0.0166	-0.0740	-0.1754	0.0384
t	1.0270	0.2482	-0.8678	-1.5871	0.1906
SIG					

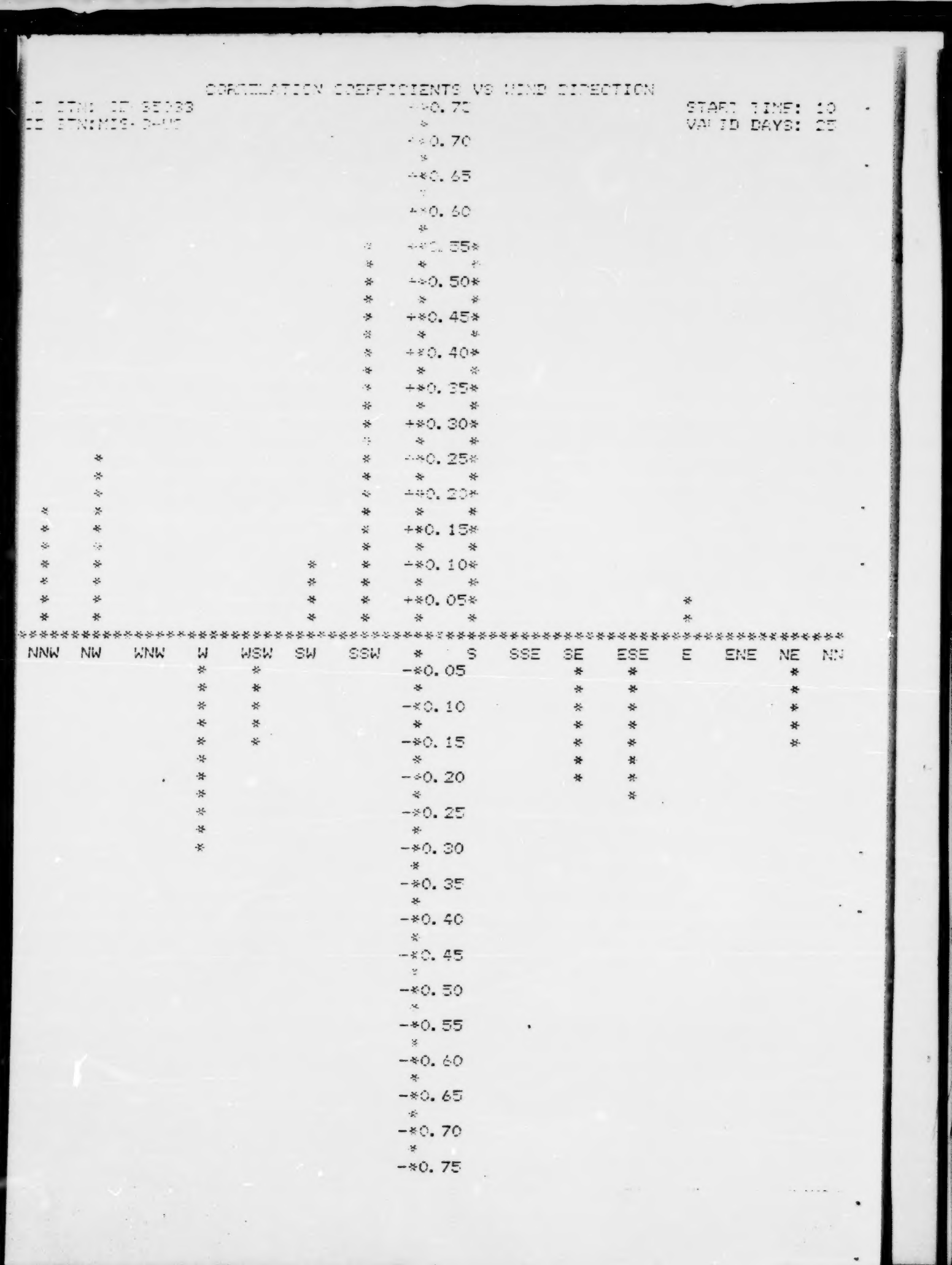
PCB CONCENTRATION VS AVERAGE TEMPERATURE:

r	0.4115
SLOPE	0.5663
t	2.1656
SIG	95%

PCB CONCENTRATION VS STD DEV TEMPERATURE:

r	-0.0369
SLOPE	-0.2207
t	-0.1765
SIG	

CORRELATION COEFFICIENTS VS WIND DIRECTION



CORRELATION COEFFICIENTS

PCB STATION: MIS-S-U4 MET. STATION: MCI-93039

NUMBER OF VALID DAYS: 27

PCB CONCENTRATION VS WIND DIRECTION

	WIND DIRECTION							
	N	NNW	NW	WNW	W	WSW	SW	SSW
r	0.0261	-0.2145	-0.2132	-0.0110	-0.0129	-0.0464	-0.0662	0.2137
SLOPE	0.0082	-0.1175	-0.1959	-0.0074	-0.0128	-0.0165	-0.0468	0.1347
t	0.1307	-1.0983	-1.0911	-0.0551	-0.0153	-0.2334	-0.3319	1.0938
SIG								

	S	SSE	SE	ESE	E	ENE	NE	NNE
r	0.3843	-0.0349	-0.1555	-0.2299	0.0039	0.0881	0.1416	0.1702
SLOPE	0.1780	-0.0101	-0.0718	-0.0667	0.0014	0.0555	0.0329	0.0699
t	2.0816	-0.1745	-0.7872	-1.1814	0.0195	0.4422	0.7154	0.8435
SIG	95%							

PCB CONCENTRATION VS WIND SPEED

	WIND SPEED (KM/HR)				
	0 - 5	5 - 10	10 - 15	15 - 20	>20
r	-0.1753	-0.0267	0.1475	-0.0303	0.5189
SLOPE	-0.0270	-0.0053	0.0404	-0.0101	0.3256
t	-0.8903	-0.1335	0.7456	-0.1515	3.0350
SIG					99%

PCB CONCENTRATION VS AVERAGE TEMPERATURE:

r	0.0541
SLOPE	0.0480
t	0.2810
SIG	

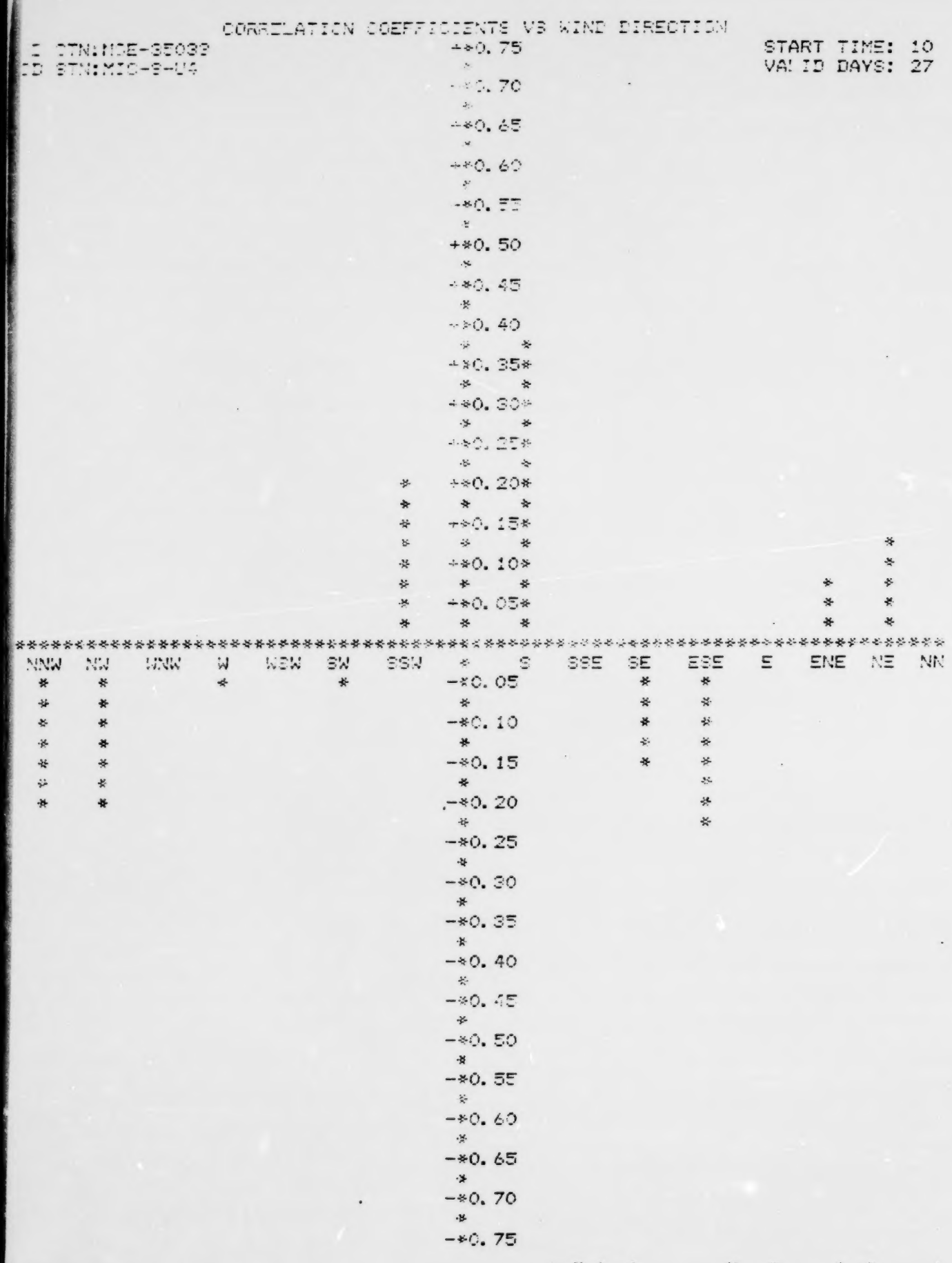
PCB CONCENTRATION VS STD DEV TEMPERATURE:

r	0.4323
SLOPE	1.6051
t	2.3972
SIG	95%

CORRELATION COEFFICIENTS VS WIND DIRECTION

I STN:MIE-SE039
ID STN:MIC-9-U4

START TIME: 10
VALID DAYS: 27



CORRELATION COEFFICIENTS

PCB STATION: MOE-3-11 MET. STATION: MOE-12034

NUMBER OF VALID DAYS: 24

PCB CONCENTRATION VS WIND DIRECTION

	WIND DIRECTION							
	N	NNW	NW	WNW	W	WSW	SW	SSW
r	0.0071	-0.1259	0.0522	-0.0146	0.2403	-0.0706	0.0871	0.6312
SLOPE	0.0034	-0.1447	0.0217	-0.0116	0.1773	-0.0760	0.0597	0.4607
t	0.0343	-0.6216	0.2562	-0.2189	1.2126	-0.3468	0.4284	3.9865
SIG								99%

	S	SSE	SE	ESE	E	ENE	NE	NNE
r	0.4525	-0.2678	-0.1002	0.0049	-0.2279	-0.1216	-0.0854	-0.0686
SLOPE	0.0821	-0.0444	-0.0253	0.0014	-0.0872	-0.0403	-0.0132	-0.0190
t	2.4857	-1.3617	-0.4935	0.0240	-1.1467	-0.6001	-0.4201	-0.3370
SIG	95%							

PCB CONCENTRATION VS WIND SPEED

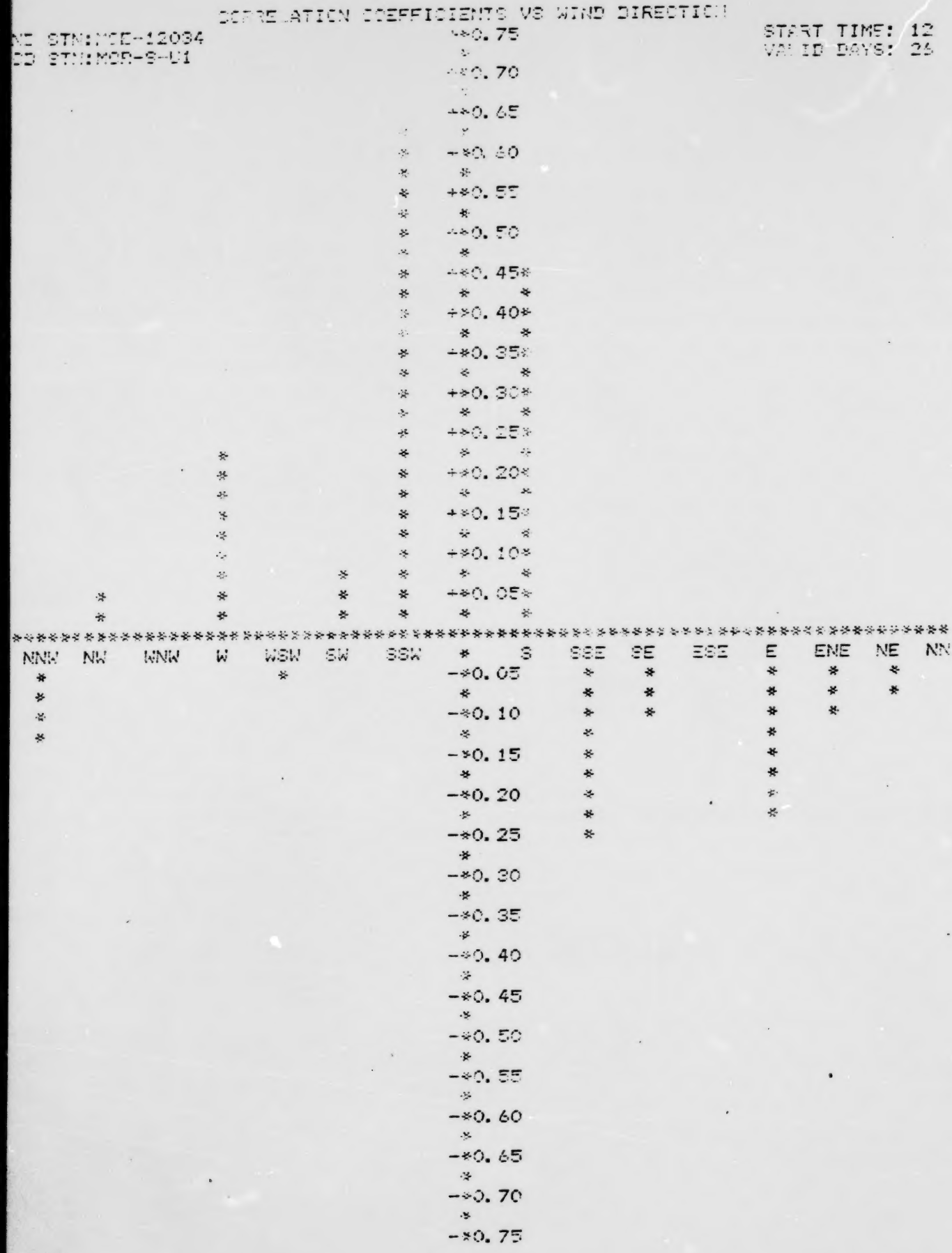
	WIND SPEED (KM/HR)				
	0 - 5	5 - 10	10 - 15	15 - 20	>20
r	0.1761	-0.0703	0.0207	-0.1090	-0.0907
SLOPE	0.0277	-0.0113	0.0054	-0.0233	-0.0323
t	0.8763	-0.3452	0.1013	-0.5370	-0.4463
SIG					

PCB CONCENTRATION VS AVERAGE TEMPERATURE:

r	0.0620
SLOPE	0.0424
t	0.3041
SIG	

PCB CONCENTRATION VS STD DEV TEMPERATURE:

r	-0.1325
SLOPE	-0.4170
t	-0.6551
SIG	


CORRELATION COEFFICIENTS VS WIND DIRECTION
E STN:MIE-12034
ED STN:MOR-8-U1
START TIME: 12
VALID DAYS: 24
+-0.75
+-0.70
+-0.65
+-0.60
+-0.55
+-0.50
+-0.45
+-0.40
+-0.35
+-0.30
+-0.25
+-0.20
+-0.15
+-0.10
+-0.05
-+0.05
-+0.10
-+0.15
-+0.20
-+0.25
-+0.30
-+0.35
-+0.40
-+0.45
-+0.50
-+0.55
-+0.60
-+0.65
-+0.70
-+0.75
NNW NW WNW W WSW SW SSW S SSE SE ESE E ENE NE NN

CORRELATION COEFFICIENTS

PCB STATION: NAN-S R1

MET. STATION: HYD- NANT

NUMBER OF VALID DAYS. 87

PCB CONCENTRATION VS WIND DIRECTION

	WIND DIRECTION							
	N	NNW	NW	WNW	W	WSW	SW	SSW
r	0.2930	0.1346	0.1011	0.0714	-0.0267	-0.0404	-0.0903	-0.1094
SLOPE	0.2565	0.0554	0.0207	0.0459	-0.0327	-0.0425	-0.0907	-0.0551
t	1.5322	0.6792	0.3079	0.3580	-0.1336	-0.2023	-0.4534	-0.5503
SIG								

	S	SSE	SE	ESE	E	ENE	NE	NNE
r	0.0519	-0.1418	-0.1309	0.0047	-0.0024	-0.0529	-0.0689	0.1810
SLOPE	0.0203	-0.0295	-0.0360	0.0010	-0.0004	-0.0214	-0.0356	0.0796
t	0.2599	-0.7314	-0.1602	0.0236	-0.0180	-0.2648	-0.3455	0.9200
SIG								

PCB CONCENTRATION VS WIND SPEED

	WIND SPEED (KM/HR)				
	0 - 5	5 - 10	10 - 15	15 - 20	>20
r	0.4108	0.1790	-0.0559	-0.2350	-0.3278
SLOPE	0.0499	0.0348	-0.0136	-0.0686	-0.0468
t	2.2529	0.9097	-0.2796	-1.2090	-1.7349
SIG	95%				90%

PCB CONCENTRATION VS AVERAGE TEMPERATURE:

r	0.2734
SLOPE	0.1891
t	1.4213
SIG	

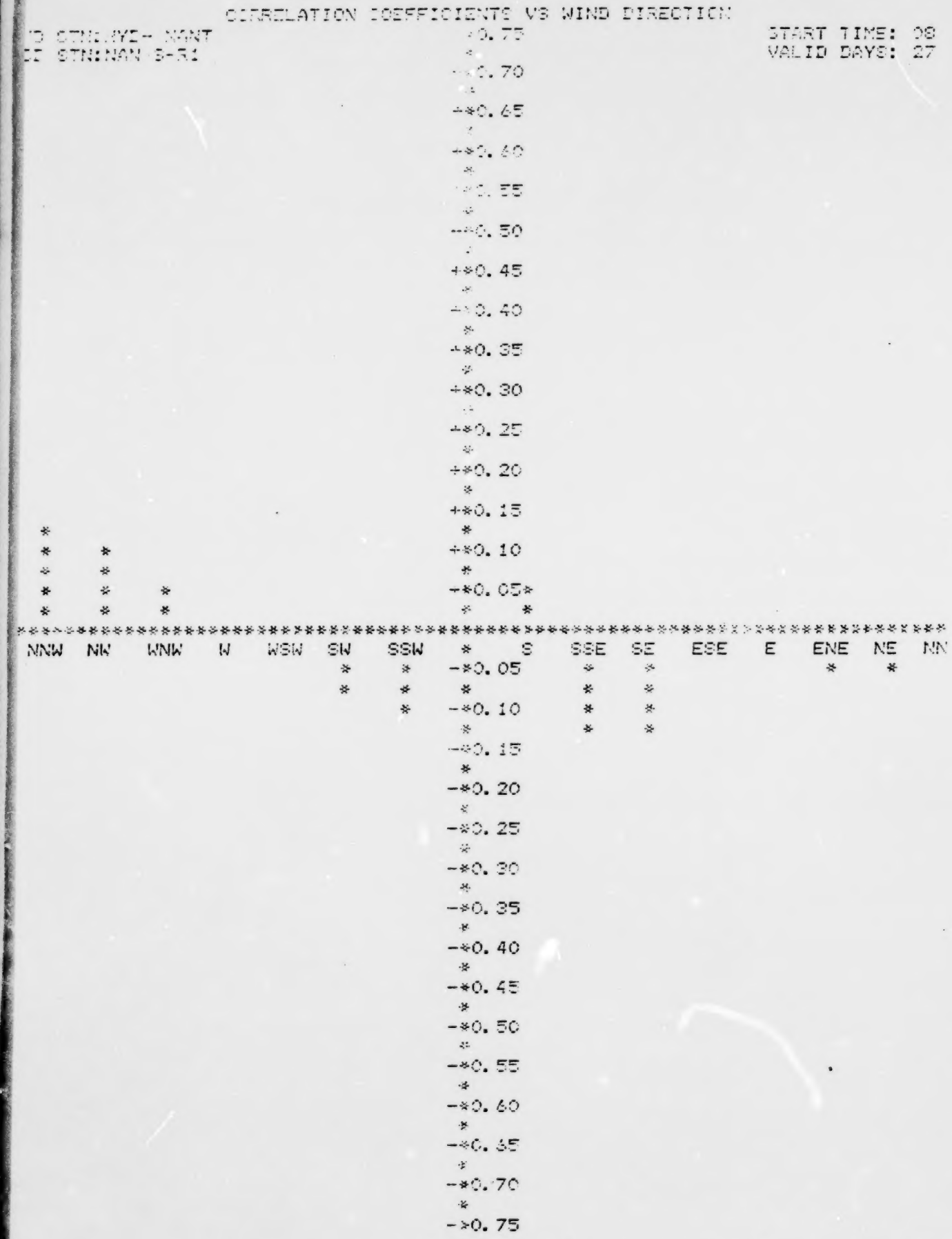
PCB CONCENTRATION VS STD DEV TEMPERATURE:

r	0.0477
SLOPE	0.2236
t	0.2384
SIG	

CORRELATION COEFFICIENTS VS WIND DIRECTION

ID STN:MYS- MONT
II STN:NAN 8-51

START TIME: 08
VALID DAYS: 27



CORRELATION COEFFICIENTS

PCB STATION: MAN-8-82 MET. STATION: HYD- MANT

NUMBER OF VALID DAYS: 27

PCB CONCENTRATION VS WIND DIRECTION

	WIND DIRECTION							
	N	NNW	NW	WNW	W	WSW	SW	SSW
r	0.1696	0.2673	0.4245	0.3540	0.1829	0.0539	0.0779	0.0091
SLOPE	0.1724	0.1291	0.1141	0.2062	0.1904	0.0661	0.0915	0.0054
t	0.8851	1.3872	2.3443	1.7047	0.6706	0.2697	0.3907	0.0456
SIG			95%	90%				

	S	SSE	SE	ESE	E	ENE	NE	NNE
r	0.1301	-0.0829	-0.3787	-0.1546	-0.2362	-0.2168	0.0602	0.1918
SLOPE	0.0536	-0.0198	-0.1218	-0.0363	-0.0436	-0.1027	0.0364	0.0985
t	0.6561	-0.4161	-2.0461	-0.7824	-1.2183	-1.1102	0.3017	0.9769
SIG			90%					

PCB CONCENTRATION VS WIND SPEED

	WIND SPEED (KM/HR)				
	0 - 5	5 - 10	10 - 15	15 - 20	>20
r	0.3120	0.3393	-0.1066	-0.2508	-0.3408
SLOPE	0.0593	0.0729	-0.0317	-0.0849	-0.0549
t	1.6421	1.7976	-0.5360	-1.2954	-1.8123
SIG		90%			90%

PCB CONCENTRATION VS AVERAGE TEMPERATURE:

r	0.2593
SLOPE	0.2048
t	1.3425
SIG	

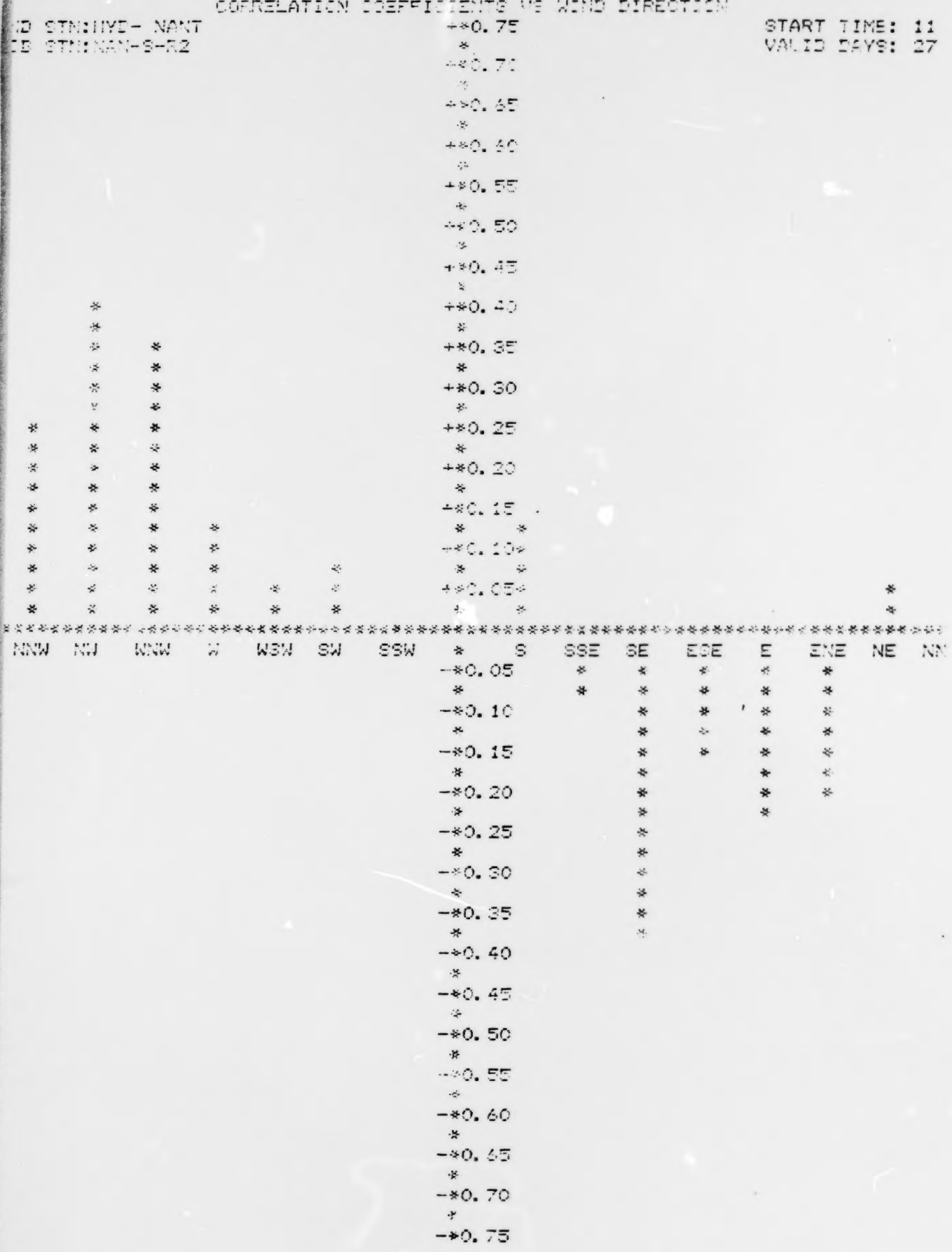
PCB CONCENTRATION VS STD DEV TEMPERATURE:

r	0.3069
SLOPE	1.6277
t	1.6125
SIG	

CORRELATION COEFFICIENTS VS WIND DIRECTION

ID STN:HYE- NANT
ID STN:NAN-S-R2

START TIME: 11
VALID DAYS: 27



CORRELATION COEFFICIENTS

PCB STATION: GSH-C-U1 MET. STATION: MOE-45025

NUMBER OF VALID DAYS: 24

PCB CONCENTRATION VS WIND DIRECTION

	WIND DIRECTION							
	N	NNW	NW	WNW	W	WSW	SW	SSW
r	-0.0337	0.1694	0.1031	0.2262	0.3041	-0.1069	-0.0831	-0.0417
SLOPE	-0.0162	0.1271	0.1041	0.1880	0.1605	-0.0509	-0.0274	-0.0158
t	-0.1663	0.8422	0.5079	1.1376	1.5440	-0.6769	-0.4063	-0.2050
SIG								

	S	SSE	SE	ESE	E	ENE	NE	NNE
r	-0.3616	0.0138	0.4367	0.0741	0.1455	-0.0038	-0.0182	0.0865
SLOPE	-0.0919	0.0039	0.3337	0.0407	0.0711	-0.0024	-0.0064	0.0455
t	-1.9303	0.0675	2.3783	0.3642	0.7209	-0.0187	-0.0891	0.4256
SIG	90%		95%					

PCB CONCENTRATION VS WIND SPEED

	WIND SPEED (KM/HR)				
	0 - 5	5 - 10	10 - 15	15 - 20	>20
r	0.1502	-0.1700	-0.0690	-0.0289	-0.0498
SLOPE	0.0227	-0.0414	-0.0165	-0.0210	-0.1781
t	0.7443	-0.8452	-0.3397	-0.1414	-0.2443
SIG					

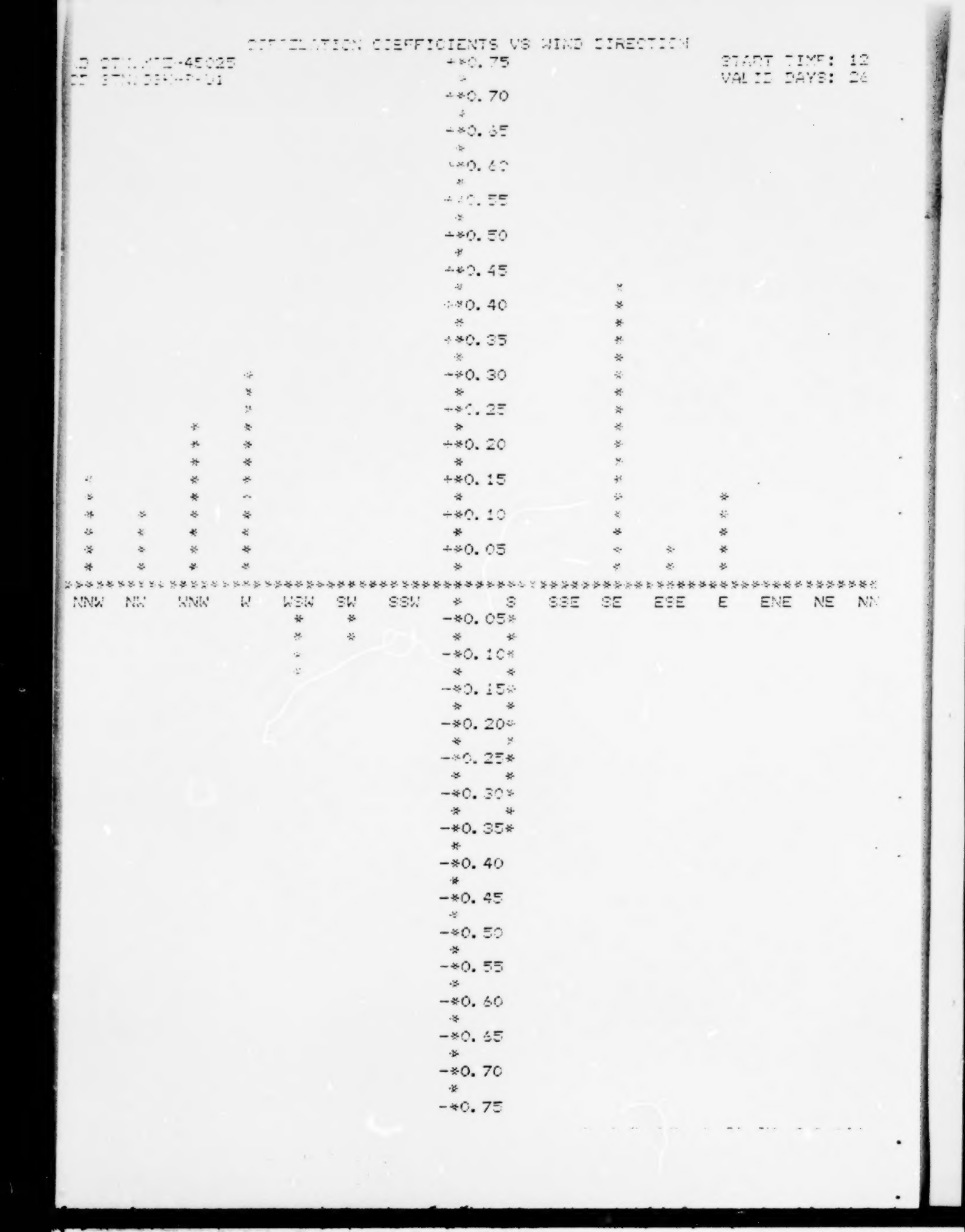
PCB CONCENTRATION VS AVERAGE TEMPERATURE:

r	0.3430
SLOPE	0.3539
t	1.9085
SIG	90%

PCB CONCENTRATION VS STD DEV TEMPERATURE:

r	0.0234
SLOPE	0.0915
t	0.1147
SIG	

DIFFUSION COEFFICIENTS VS WIND DIRECTION



CORRELATION COEFFICIENTS

POLLUTION: STO-E R1 NET. STATION: MOE-27047

NUMBER OF VALID DAYS: 26

POD CONCENTRATION VS WIND DIRECTION

	WIND DIRECTION							
	N	NNW	NW	WNW	W	WSW	SW	SSW
r	0.4671	0.2050	0.0224	0.0108	-0.2917	0.3928	0.4249	0.1035
SLOPE	0.4214	0.1590	0.0086	0.0077	-0.2208	0.3874	0.3691	0.0838
t	2.5373	1.0263	0.1106	0.0529	-1.4382	2.0923	2.3121	0.5096
SIG	95%					95%	95%	

	WIND DIRECTION							
	S	SSE	SE	ESE	E	ENE	NE	NNE
r	0.0291	0.0174	-0.2176	0.0128	-0.2502	-0.0728	0.0045	-0.2394
SLOPE	0.0128	0.0059	-0.1317	0.0058	-0.0568	-0.0820	0.0070	-0.4021
t	0.1425	0.0652	-1.0920	0.0627	-1.2459	-0.3576	0.0218	-1.2052
SIG								

POD CONCENTRATION VS WIND SPEED

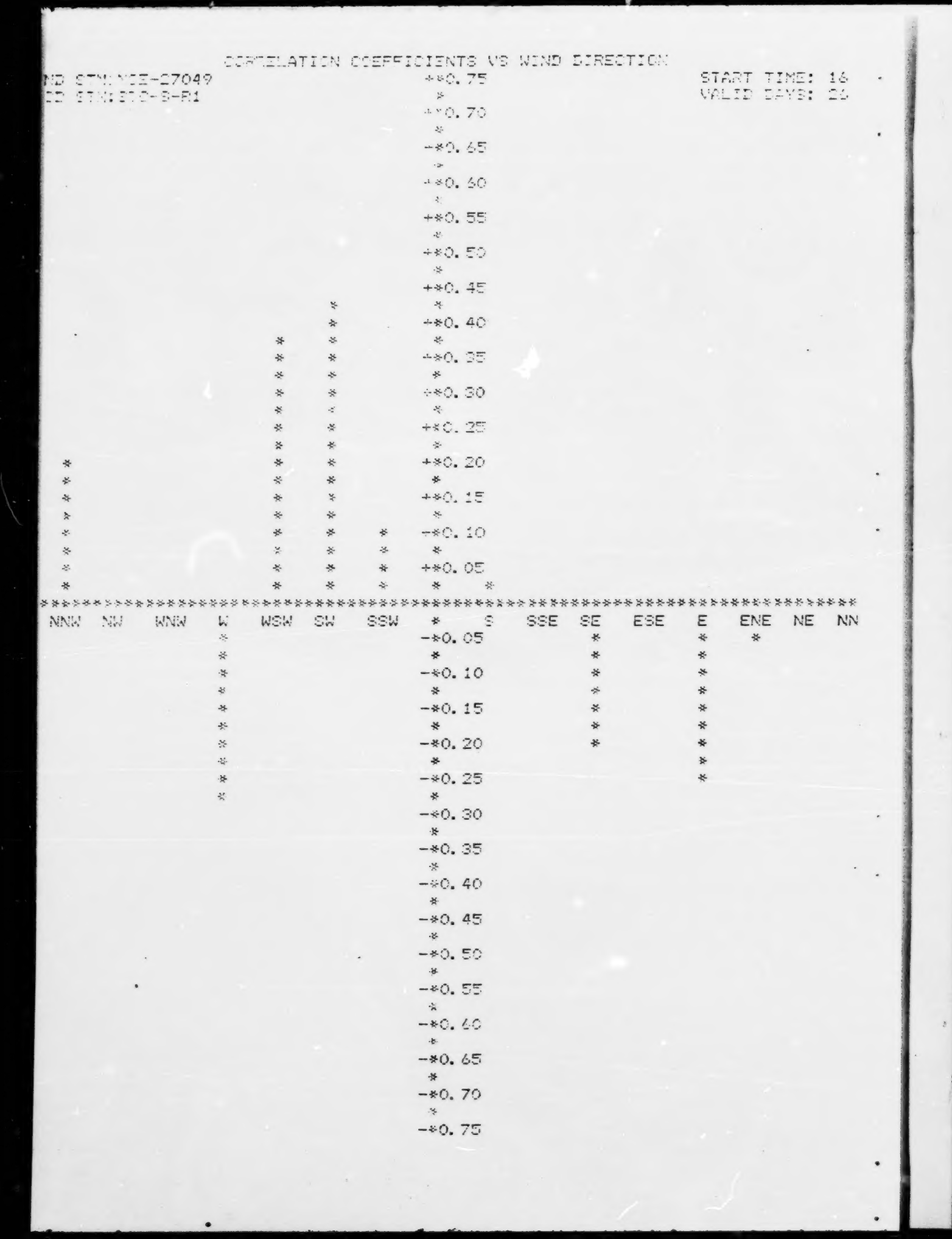
	WIND SPEED (KM/HR)				
	0 - 5	5 - 10	10 - 15	15 - 20	>20
r	0.4558	-0.3894	-0.3383	-0.2015	-0.0820
SLOPE	0.0954	-0.1549	-0.1064	-0.1353	-0.1121
t	2.5096	-2.0709	-1.7614	-1.0077	-0.4031
SIG	95%	95%	90%		

POD CONCENTRATION VS AVERAGE TEMPERATURE:

r	0.1142
SLOPE	0.1250
t	0.5630
SIG	

POD CONCENTRATION VS STD DEV TEMPERATURE:

r	-0.4109
SLOPE	-1.9534
t	-2.2043
SIG	95%


CORRELATION COEFFICIENTS VS WIND DIRECTION
ND STN: YCE-27049
ED STN: 210-8-R1
START TIME: 16
VALID DAYS: 26
+*0.75
+*0.70
+*0.65
+*0.60
+*0.55
+*0.50
+*0.45
+*0.40
+*0.35
+*0.30
+*0.25
+*0.20
+*0.15
+*0.10
+*0.05
-*0.05
-*0.10
-*0.15
-*0.20
-*0.25
-*0.30
-*0.35
-*0.40
-*0.45
-*0.50
-*0.55
-*0.60
-*0.65
-*0.70
-*0.75
NNW NW WNW W WSW SW SSW S SSE SE ESE E ENE NE NN

CORRELATION COEFFICIENTS

PCB STATION: BAR-8-11 MET. STATION: MOE-14014

NUMBER OF VALID DAYS: 84

PCB CONCENTRATION VS WIND DIRECTION

	WIND DIRECTION							
	N	NNW	NW	WNW	W	WSW	SW	SSW
r	0.1560	0.4892	0.3541	0.1083	0.1004	-0.1124	-0.0809	0.1460
SLOPE	0.1749	0.4134	0.6083	0.0763	0.4074	-0.0767	-0.0534	0.0916
t	0.7407	3.6982	3.1218	0.4872	0.9105	-0.5306	-0.3805	0.6922
SIG		99%	99%					

	S	SSE	SE	ESE	E	ENE	NE	NNE
r	0.0715	-0.2743	-0.2042	-0.1562	-0.2480	0.0065	-0.1615	0.1347
SLOPE	0.0163	-0.1034	-0.0644	-0.1122	-0.1681	0.0022	-0.0847	0.0976
t	0.3502	-1.9380	-0.9785	-0.7419	-1.3047	0.0307	-0.8066	0.6377
SIG								

PCB CONCENTRATION VS WIND SPEED

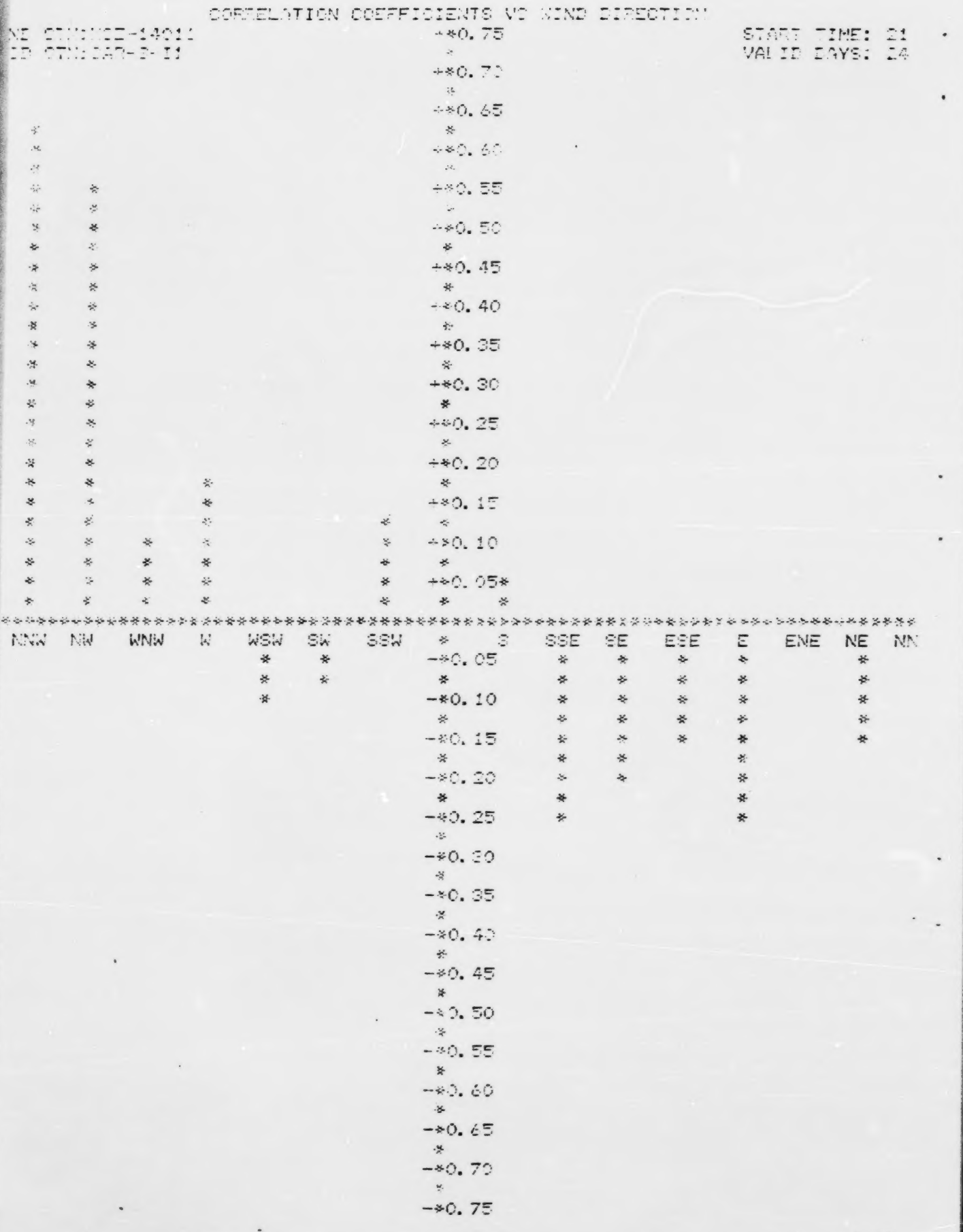
	WIND SPEED (KM/HR)				
	0 - 5	5 - 10	10 - 15	15 - 20	>20
r	0.1303	0.2478	0.2160	-0.1676	-0.2769
SLOPE	0.0494	0.0454	0.0649	-0.0763	-0.0469
t	0.6145	1.1996	1.0378	-0.7975	-1.3514
SIG					

PCB CONCENTRATION VS AVERAGE TEMPERATURE:

r	0.4574
SLOPE	0.5093
t	2.4124
SIG	95%

PCB CONCENTRATION VS STD DEV TEMPERATURE:

r	-0.0701
SLOPE	-0.4604
t	-0.4241
SIG	


CORRELATION COEFFICIENTS VS WIND DIRECTION
NE STN:USE-14011
ID STN:DAY-3-11
START TIME: 21
VALID DAYS: 14
+*0.75
+*0.70
+*0.65
+*0.60
+*0.55
+*0.50
+*0.45
+*0.40
+*0.35
+*0.30
+*0.25
+*0.20
+*0.15
+*0.10
+*0.05*
-*0.05
-*0.10
-*0.15
-*0.20
-*0.25
-*0.30
-*0.35
-*0.40
-*0.45
-*0.50
-*0.55
-*0.60
-*0.65
-*0.70
-*0.75
NNW NW WNW W WSW SW SSW S SSE SE ESE E ENE NE NN

CORRELATION COEFFICIENTS

PCB STATION: SAR-9-U1 MET. STATION: MOE-14014

NUMBER OF VALID DAYS: 24

PCB CONCENTRATION VS WIND DIRECTION:

	WIND DIRECTION: N	NNW	NW	WNW	W	WSW	SW	SSW
r	0.1910	0.6894	0.4827	-0.0768	0.0127	-0.1419	-0.2020	-0.0447
SLOPE	0.3896	1.0518	1.3169	-0.1175	0.0749	-0.2016	-0.2247	-0.0522
t	0.9127	4.4640	2.5851	-0.3611	0.0595	-0.6724	-0.9672	-0.2107
SIG		99%	95%					

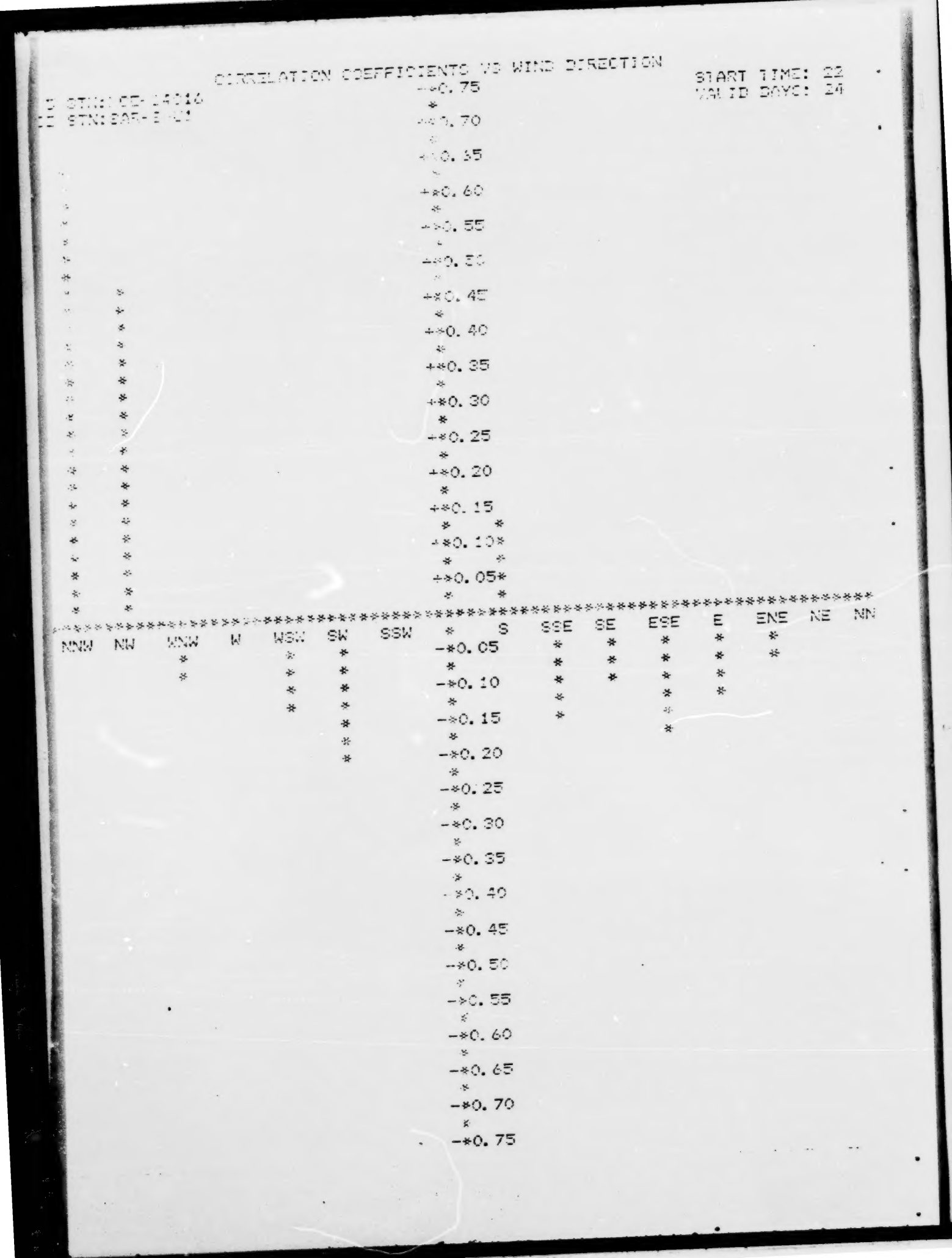
	S	SSE	SE	ESE	E	ENE	NE	NNE
r	0.1293	-0.1657	-0.1284	-0.1982	-0.1359	-0.0753	-0.0309	0.3026
SLOPE	0.0415	-0.0833	-0.0919	-0.2496	-0.1395	-0.0423	-0.0161	0.3447
t	0.6117	-0.7893	-0.5832	-0.9487	-0.6434	-0.3543	-0.1449	1.4893
SIG								

PCB CONCENTRATION VS WIND SPEED

	WIND SPEED (KM/HR): 0 - 5	5 - 10	10 - 15	15 - 20	>20
r	-0.0028	0.1189	0.4367	-0.0639	-0.2543
SLOPE	-0.0019	0.0573	0.2436	-0.0441	-0.0696
t	-0.0133	0.5619	2.2769	-0.3003	-1.2358
SIG			95%		

PCB CONCENTRATION VS AVERAGE TEMPERATURE:	r	0.1983
	SLOPE	0.3431
	t	0.9490
	SIG	

PCB CONCENTRATION VS STD DEV TEMPERATURE:	r	0.0720
	SLOPE	0.6219
	t	0.3394
	SIG	


CORRELATION COEFFICIENTS VS WIND DIRECTION
START TIME: 22
VALID DAYS: 24
D STN: SEA- 14016
E STN: BAR- 24021
+0.75
+0.70
+0.65
+0.60
+0.55
+0.50
+0.45
+0.40
+0.35
+0.30
+0.25
+0.20
+0.15
+0.10
+0.05
-0.05
-0.10
-0.15
-0.20
-0.25
-0.30
-0.35
-0.40
-0.45
-0.50
-0.55
-0.60
-0.65
-0.70
-0.75
NNW
NW
WNW
W
WSW
SW
SSW
S
SSE
SE
ESE
E
ENE
NE
NN

CORRELATION COEFFICIENTS

MET. STATION: MOE-77025

POB STATION: SUD-9-81

NUMBER OF VALID DAYS: 24

POB CONCENTRATION VS WIND DIRECTION

	WIND DIRECTION							
	N	NNW	NW	WNW	W	WSW	SW	SSW
r	0.3011	0.2681	0.3659	0.2370	0.0455	0.2379	0.0683	-0.2234
SLOPE	0.0727	0.1170	0.1061	0.0925	0.0303	0.1412	0.0240	-0.0638
t	1.4312	1.2792	1.8442	1.1448	0.2135	1.1480	0.3209	-1.0747
SIG			90%					

	S	SSE	SE	ESE	E	ENE	NE	NNE
r	-0.3493	-0.2118	-0.1939	0.0419	-0.1029	-0.1478	0.0441	0.0706
SLOPE	-0.0474	-0.0295	-0.0651	0.0096	-0.0464	-0.0791	0.0121	0.0105
t	-1.7402	-1.0163	-0.9271	0.1967	-0.4851	-0.7010	0.2071	0.3822
SIG	10%							

POB CONCENTRATION VS WIND SPEED

	WIND SPEED (KM/HR)				
	0 - 5	5 - 10	10 - 15	15 - 20	>20
r	-0.2911	0.2502	0.2360	0.1466	-0.1300
SLOPE	-0.0481	0.0563	0.0456	0.0334	-0.0139
t	-1.4274	1.2123	1.1392	0.6953	-0.6151
SIG					

POB CONCENTRATION VS AVERAGE TEMPERATURE:

r	0.0247
SLOPE	0.0118
t	0.1159
SIG	

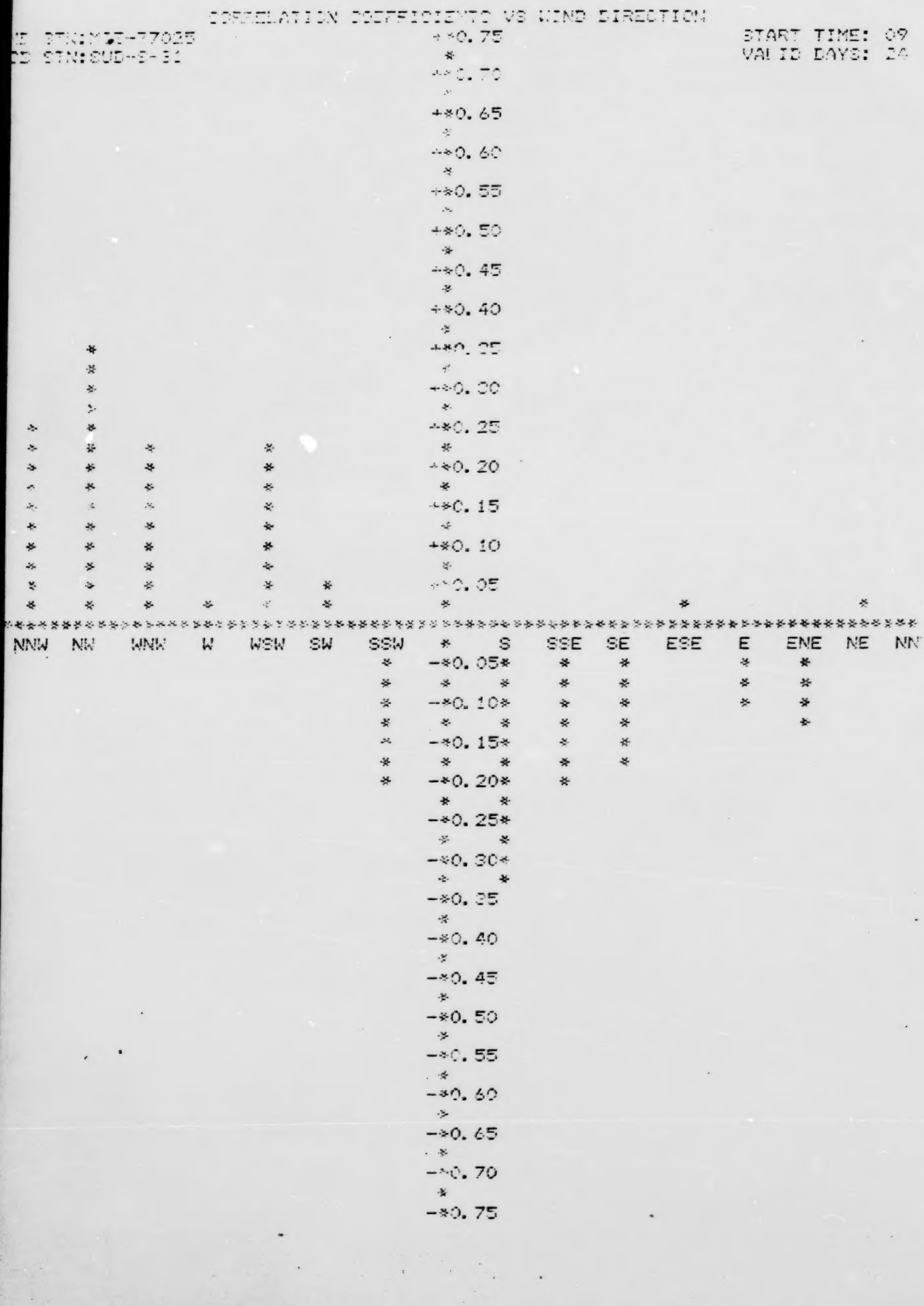
POB CONCENTRATION VS STD DEV TEMPERATURE:

r	0.4341
SLOPE	1.2042
t	2.2601
SIG	95%

CORRELATION COEFFICIENT'S VS WIND DIRECTION

ME STN:MET-77025
CO STN:GUD-9-31

START TIME: 09
VALID DAYS: 24



CORRELATION COEFFICIENTS

PCB STATION: SUD-S-R1 MET. STATION: MOE-77023

NUMBER OF VALID DAYS: 26

PCB CONCENTRATION VS WIND DIRECTION

	WIND DIRECTION							
	N	NNW	NW	WNW	W	WSW	SW	SSW
r	-0.1342	-0.0731	-0.0098	-0.0150	-0.2317	-0.0415	-0.2562	-0.2153
SLOPE	-0.0505	-0.0277	-0.0042	-0.0097	-0.2554	-0.0379	-0.1229	-0.1020
t	-0.6837	-0.3591	-0.0490	-0.0733	-1.1678	-0.2035	-1.2965	-1.0300
SIG								

	S	SSE	SE	ESE	E	ENE	NE	NNE
r	0.1761	0.4812	0.2421	-0.0929	-0.2845	-0.3514	-0.0758	0.0089
SLOPE	0.0548	0.1041	0.1264	-0.0442	-0.2755	-0.3887	-0.0331	0.0020
t	0.8762	2.3415	1.2224	-0.4570	-1.4590	-2.0159	-0.3724	0.0431
SIG		95%				90%		

PCB CONCENTRATION VS WIND SPEED

	WIND SPEED (KM/HR)				
	0 - 5	5 - 10	10 - 15	15 - 20	>20
r	-0.3425	-0.4082	-0.3582	0.2445	0.5320
SLOPE	-0.0990	-0.1397	-0.1069	0.0905	0.0935
t	-1.9057	-2.1904	-1.8496	1.2352	3.0780
SIG	90%	95%	90%		99%

PCB CONCENTRATION VS AVERAGE TEMPERATURE:

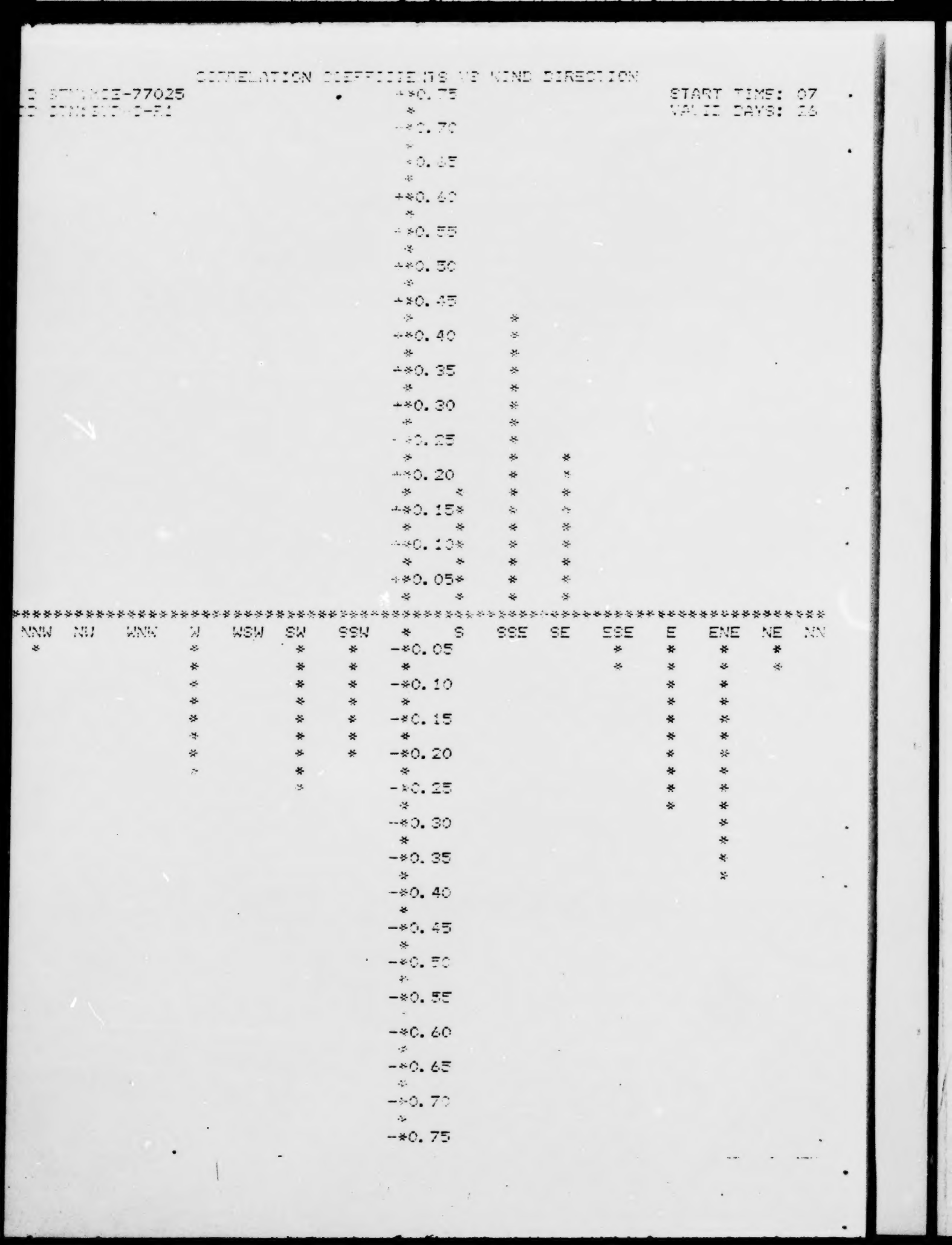
r	0.2400
SLOPE	0.1913
t	1.2113
SIG	

PCB CONCENTRATION VS STD DEV TEMPERATURE:

r	-0.0089
SLOPE	-0.0453
t	-0.0434
SIG	

CORRELATION COEFFICIENTS VS WIND DIRECTION

[illegible] STATION-77025 START TIME: 07
[illegible] DISTRICT-21 VALID DAYS: 16



CORRELATION COEFFICIENTS

PCB STATION: THU-C 01 MET. STATION: AES- TEAY

NUMBER OF VALID DAYS: 24

PCB CONCENTRATION VS WIND DIRECTION

	WIND DIRECTION							
	N	NNW	NW	WNW	W	WSW	SW	SSW
r	0.0403	-0.0242	-0.3871	-0.2391	-0.5231	-0.4127	-0.2781	0.0674
SLOPE	0.0094	-0.0027	-0.0496	-0.0581	-0.1001	-0.1483	-0.2003	0.0420
t	0.1975	-0.1187	-2.0545	-1.3140	-3.0071	-2.2198	-1.4181	0.3017
SIG			90%		99%	95%		

	S	SSE	SE	ESE	E	ENE	NE	NNE
r	0.4745	0.3700	0.4149	0.3093	0.1710	0.5284	0.1518	0.3323
SLOPE	0.2968	0.2341	0.1890	0.1010	0.0425	0.1818	0.0694	0.0700
t	2.3404	1.7510	2.2461	1.7669	0.7832	3.0483	0.7524	1.7259
SIG	95%	90%	95%	90%		99%		90%

PCB CONCENTRATION VS WIND SPEED

	WIND SPEED (KM/HR)				
	0 - 5	5 - 10	10 - 15	15 - 20	>20
r	0.4328	0.2115	-0.3900	-0.3583	-0.2129
SLOPE	0.0519	0.0328	-0.0677	-0.0832	-0.0427
t	2.3518	1.0602	-2.0750	-1.8802	-1.0675
SIG	95%		95%	90%	

PCB CONCENTRATION VS AVERAGE TEMPERATURE:

r	0.0257
SLOPE	0.0160
t	0.1262
SIG	

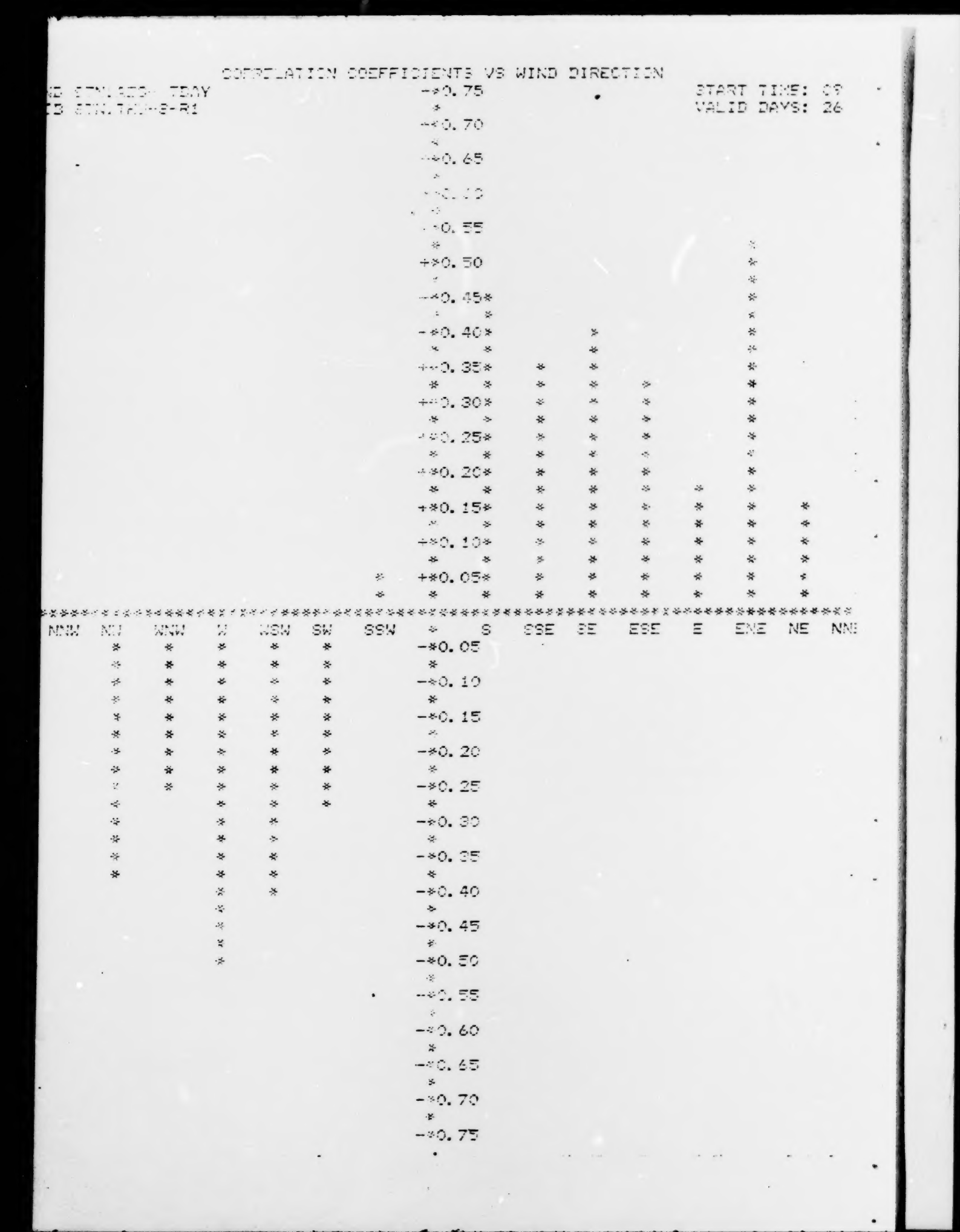
PCB CONCENTRATION VS STD DEV TEMPERATURE:

r	-0.0043
SLOPE	-0.0093
t	-0.0211
SIG	

CORRELATION COEFFICIENTS VS WIND DIRECTION

ID STN.SIG- TDAY
ID STN.TA/--8-R1

START TIME: 09
VALID DAYS: 26



C[illegible] ATION COEFFICIENTS

PIE STATION: TWO-TWO [illegible] MET. STATION: MEI- TSAY

NUMBER OF VALID DAYS: 27

PIE CONCENTRATION VS WIND DIRECTION

	WIND DIRECTION							
	N	NNW	NW	WNW	W	WSW	SW	SSW
r	0.3074	-0.0784	-0.1110	-0.1171	-0.1415	1.2227	-0.0801	0.2052
SLOPE	0.1077	-0.1156	-0.1017	1.1005	-0.1681	-0.1272	-0.0044	0.2048
t	1.6281	-0.3984	2.1781	-1.5153	1.6220	1.1749	-0.1451	1.0139
SIG			95%	90%	95%			

	S	SSE	SE	ESE	E	ENE	NE	NNE
r	0.4027	0.0091	0.0172	0.0460	0.0511	0.3064	0.3949	0.2421
SLOPE	0.3726	0.2417	1.1611	0.1076	0.0802	0.1838	0.3005	0.0049
t	2.2367	1.5101	1.1123	1.2260	0.9049	1.7116	2.1[illegible]	1.2477
SIG	95%					90%	95%	

PIE CONCENTRATION VS WIND SPEED

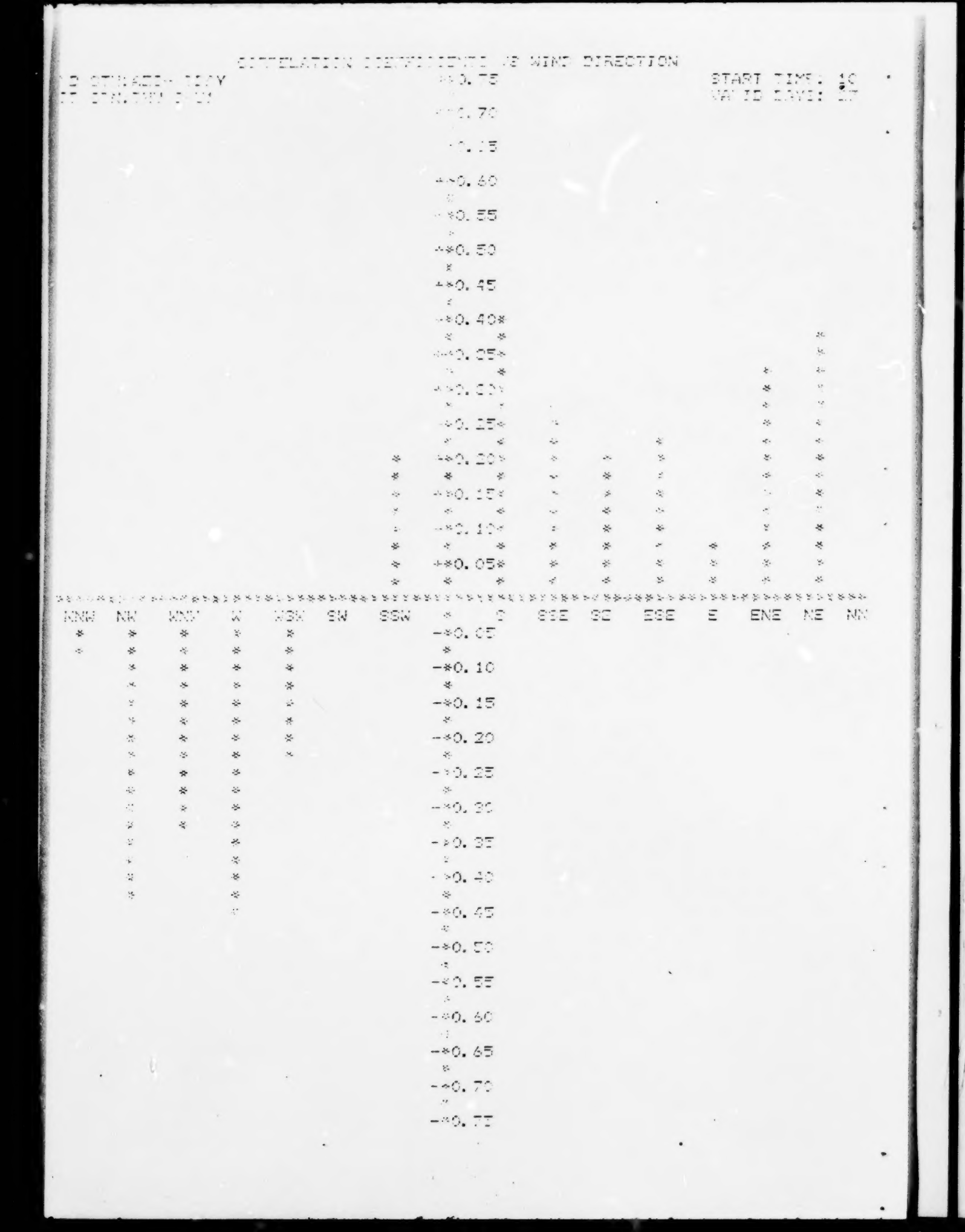
	WIND SPEED (KM/HR)				
	0 - 5	5 - 10	10 - 15	15 - 20	>20
r	0.4755	-0.0227	-0.4141	-0.2884	-0.0101
SLOPE	0.1021	-0.0062	-0.1185	-0.1264	-0.0059
t	2.7270	-0.1187	-2.2741	-1.5071	-0.0906
SIG	95%		95%		

PIE CONCENTRATION VS AVERAGE TEMPERATURE:

r	0.6468
SLOPE	0.3727
t	1.9510
SIG	90%

PIE CONCENTRATION VS STD DEV TEMPERATURE.

r	0.1211
SLOPE	0.3944
t	0.6097
SIG	


CIRCULATION COEFFICIENT VS WIND DIRECTION
START TIME: 10
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
NNW NW WNW W WSW SW SSW S SSE SE ESE E ENE NE NNE

CORRELATION COEFFICIENTS

PCB STATION: TOR-S-01 MET. STATION: MCE-10000

NUMBER OF VALID DAYS: 22

PCB CONCENTRATION VS WIND DIRECTION:

	WIND DIRECTION							
	N	NNW	NW	WNW	W	WSW	SW	SSW
r	0.5794	0.4290	0.3612	-0.0724	-0.0075	0.5205	0.1704	0.2926
SLOPE	0.2787	0.1924	0.2494	-0.0416	-0.0113	0.2405	0.1239	0.1105
t	3.2581	2.1703	1.8144	-0.3829	-0.0842	2.7931	0.7027	1.4031
SIG	99%	95%	90%			95%		

	S	SSE	SE	ESE	E	ENE	NE	NNE
r	0.1021	0.1051	-0.3174	-0.4041	-0.1150	-0.1613	-0.1761	0.0504
SLOPE	0.0382	-0.0251	-0.1019	0.1311	-0.0744	-0.0477	-0.0329	0.0214
t	0.4701	-0.4940	-1.5044	-2.2207	-0.9147	-0.6116	-0.8200	0.2911
SIG				95%				

PCB CONCENTRATION VS WIND SPEED

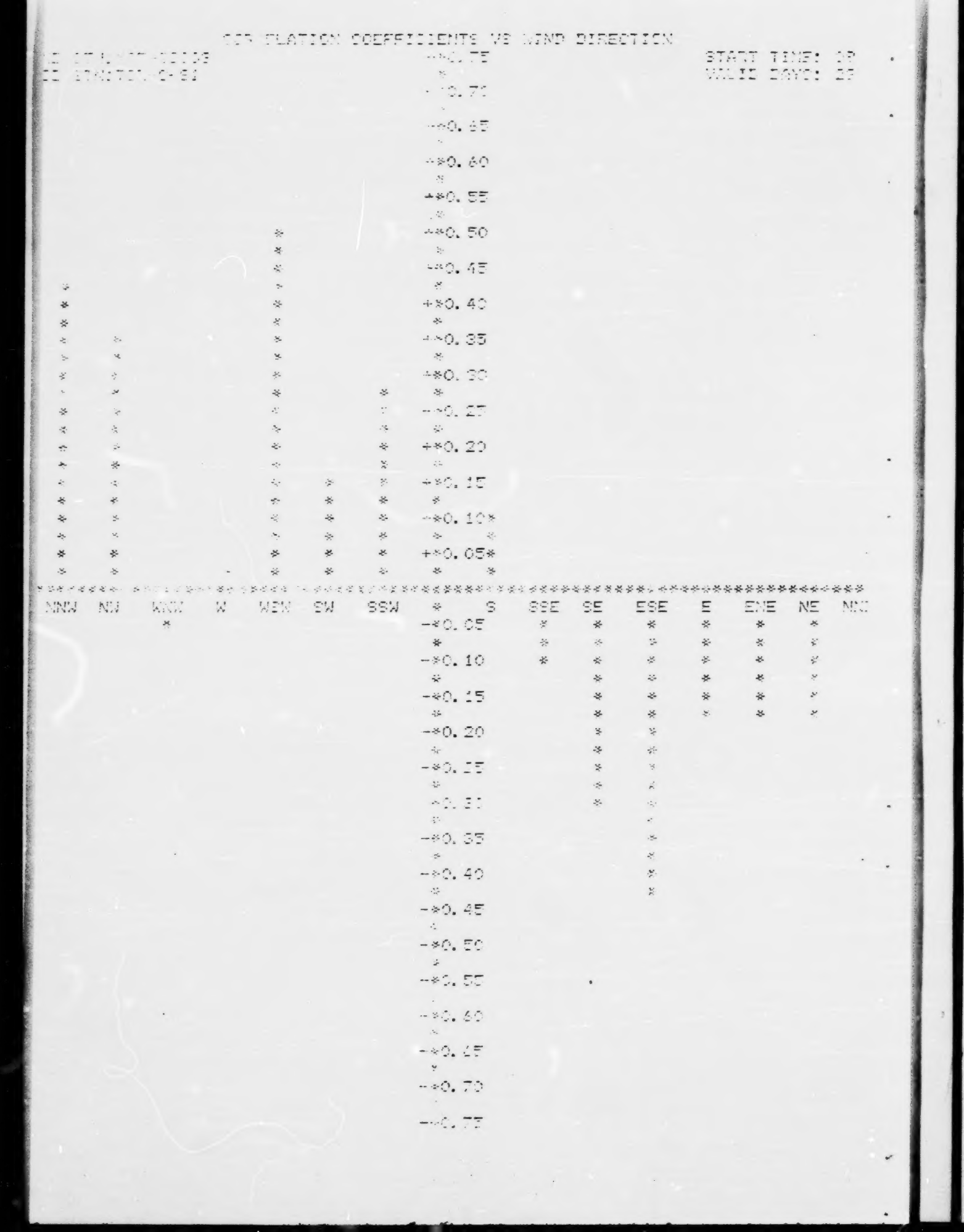
	WIND SPEED (KM/HR)				
	0 - 5	5 - 10	10 - 15	15 - 20	>20
r	0.3131	0.0217	-0.1559	-0.2241	-0.1974
SLOPE	0.0410	-0.0037	-0.0204	-0.0497	-0.0702
t	1.5100	0.0972	-0.7283	-1.0603	-0.9287
SIG					

PCB CONCENTRATION VS AVERAGE TEMPERATURE:

r	0.3371
SLOPE	0.1774
t	1.6520
SIG	

PCB CONCENTRATION VS STD DEV TEMPERATURE:

r	0.0218
SLOPE	0.1084
t	0.1127
SIG	


CORRELATION COEFFICIENTS VS WIND DIRECTION
START TIME:
VALID ZONE:
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
NNW
NW
WNW
W
WSW
SW
SSW
S
SSE
SE
ESE
E
ENE
NE
NNE

CORRELATION COEFFICIENTS

PCB STATION: TOR-6-U1 MET. STATION: MOE-63002

NUMBER OF VALID DAYS: 25

PCB CONCENTRATION VS WIND DIRECTION

	WIND DIRECTION							
	N	NNW	NW	WNW	W	WSW	SW	SSW
r	0.1983	0.1052	0.4854	0.6877	0.1239	0.3509	-0.0417	0.4360
SLOPE	0.2159	0.2033	0.5979	0.8143	0.0658	0.4038	-0.0179	0.3776
t	0.9701	0.9544	2.6638	3.8850	0.5984	1.7971	-0.2000	2.8234
SIG			95%	99%		90%		95%

	S	SSE	SE	ESE	E	ENE	NE	NNE
r	-0.0578	-0.2699	-0.3805	-0.2770	-0.0070	-0.1297	-0.2752	0.0204
SLOPE	-0.0419	-0.1471	-0.2743	-0.1400	-0.0062	-0.1030	-0.1173	0.0197
t	-0.2777	-1.0442	-1.9736	-1.3925	-0.0334	-0.4278	-1.3780	0.0900
SIG			90%					

PCB CONCENTRATION VS WIND SPEED

	WIND SPEED (KM/HR)				
	0 - 5	5 - 10	10 - 15	15 - 20	>20
r	0.5177	-0.0177	-0.3795	-0.3825	-0.3187
SLOPE	1.1490	0.0070	-0.2141	-0.1120	-0.2481
t	2.9022	0.0351	-1.9469	-1.4907	-1.5838
SIG	95%		90%		

PCB CONCENTRATION VS AVERAGE TEMPERATURE:

r	0.3216
SLOPE	0.4845
t	1.6292
SIG	

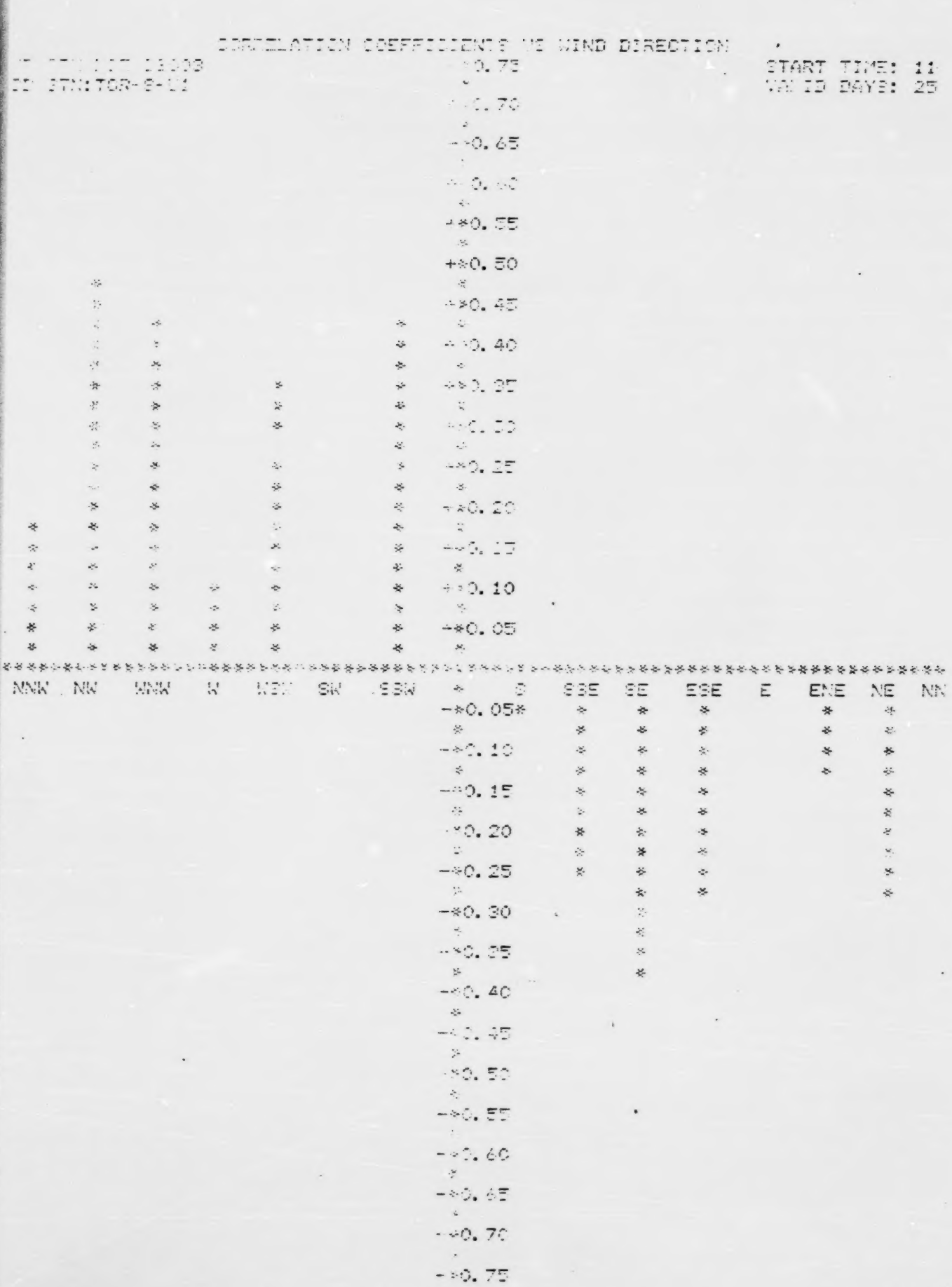
PCB CONCENTRATION VS STD DEV TEMPERATURE:

r	-0.1847
SLOPE	-1.3504
t	-0.9114
SIG	

CORRELATION COEFFICIENTS VS WIND DIRECTION

II STN:TOR-8-11

START TIME: 11
VALID DAYS: 25



CORRELATION COEFFICIENTS

POC STATION: WIN-2-11 MET. STATION: MCI-12091

NUMBER OF VALID DAYS: 27

POC CONCENTRATION VS WIND DIRECTION

	WIND DIRECTION: N	NNW	NW	WNW	W	WSW	SW	SSW
r	0.0123	0.0026	0.3828	0.3486	0.6804	0.1688	0.3012	0.2074
SLOPE	0.0199	0.0031	0.1441	0.0917	0.4796	0.1703	0.2154	0.1558
t	0.2119	0.0131	2.0721	1.8298	4.0404	0.7784	1.6081	1.0602
SIG			95%	90%	99%			

	S	SSE	SE	ESE	E	ENE	NE	NNE
r	0.0054	-0.2850	-0.2889	-0.1310	-0.0739	-0.0729	0.0380	-0.0943
SLOPE	0.0010	-0.0431	-0.0750	-0.0518	-0.0299	-0.0245	0.0077	-0.0266
t	0.0269	-1.4846	-1.5090	-0.9200	-0.3799	-0.3452	0.1901	-0.4738
SIG								

POC CONCENTRATION VS WIND SPEED

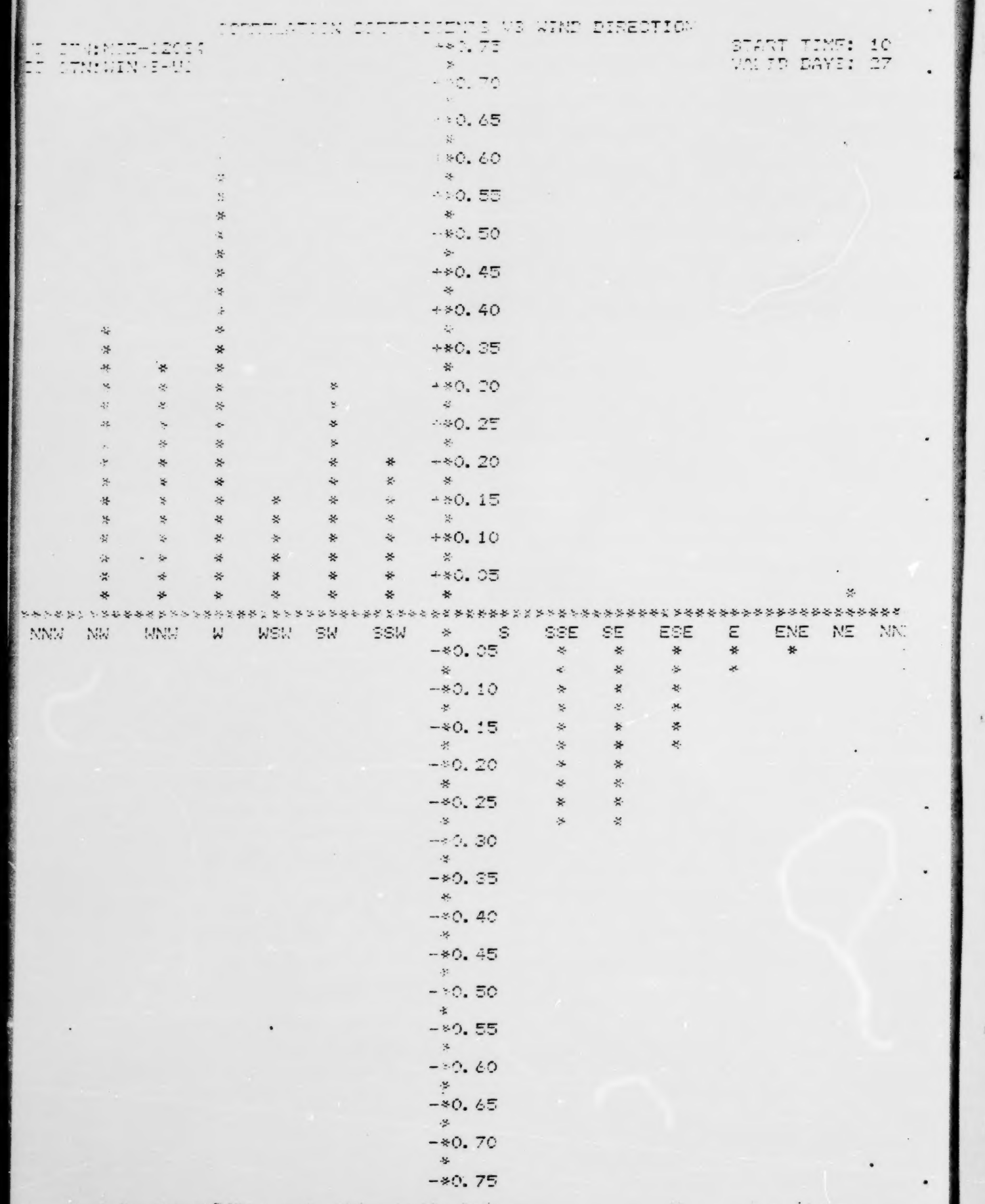
	WIND SPEED (KM/HR): 0 - 5	5 - 10	10 - 15	15 - 20	>20
r	0.5775	0.1731	-0.4762	-0.4194	-0.2904
SLOPE	0.0943	0.0291	-0.1213	-0.0862	-0.1080
t	2.5367	0.8709	-2.7122	-2.8096	-1.5415
SIG	95%		95%	95%	

POC CONCENTRATION VS AVERAGE TEMPERATURE:

r	0.1847
SLOPE	0.1277
t	0.9378
SIG	

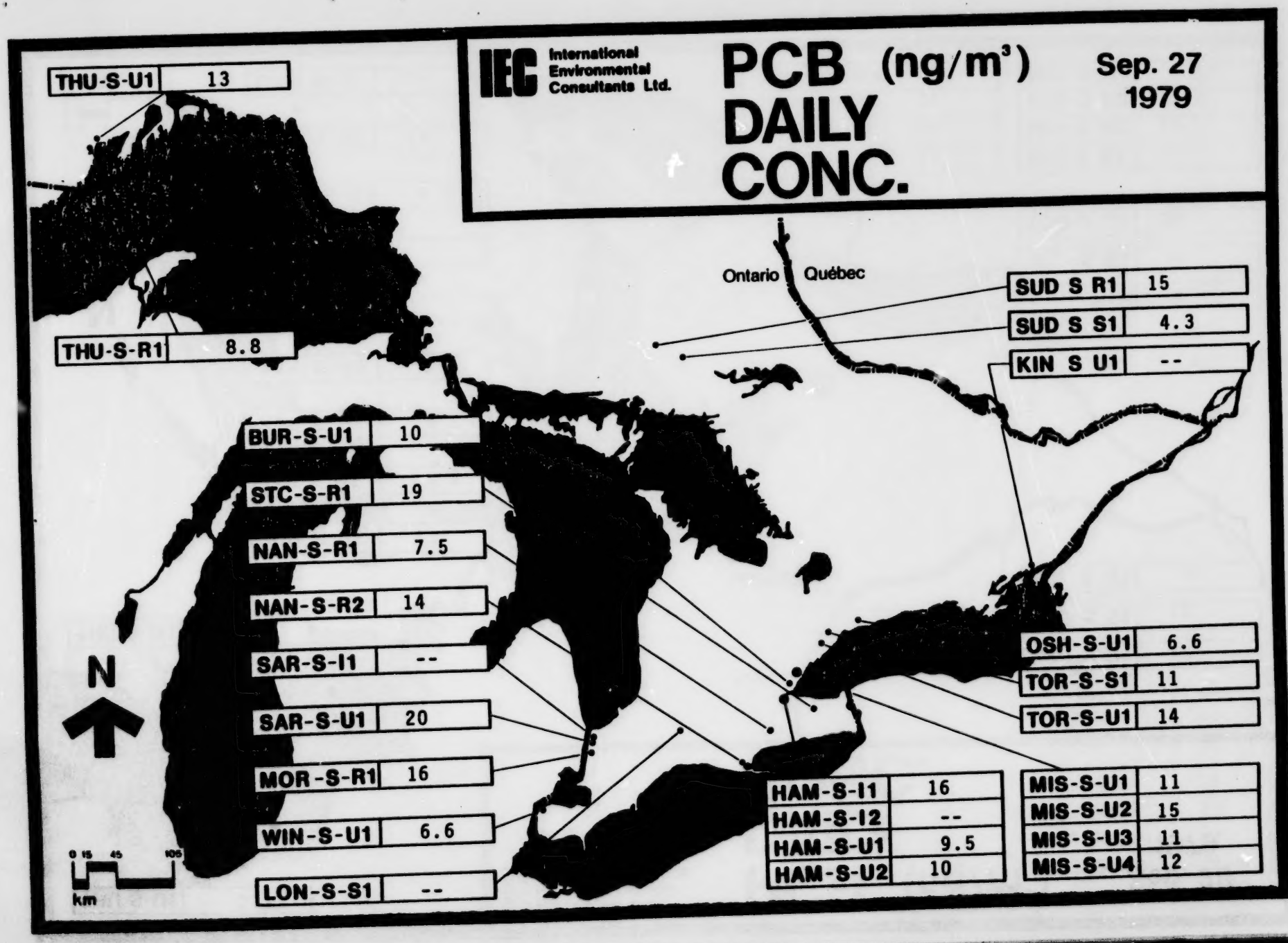
POC CONCENTRATION VS STD DEV TEMPERATURE:

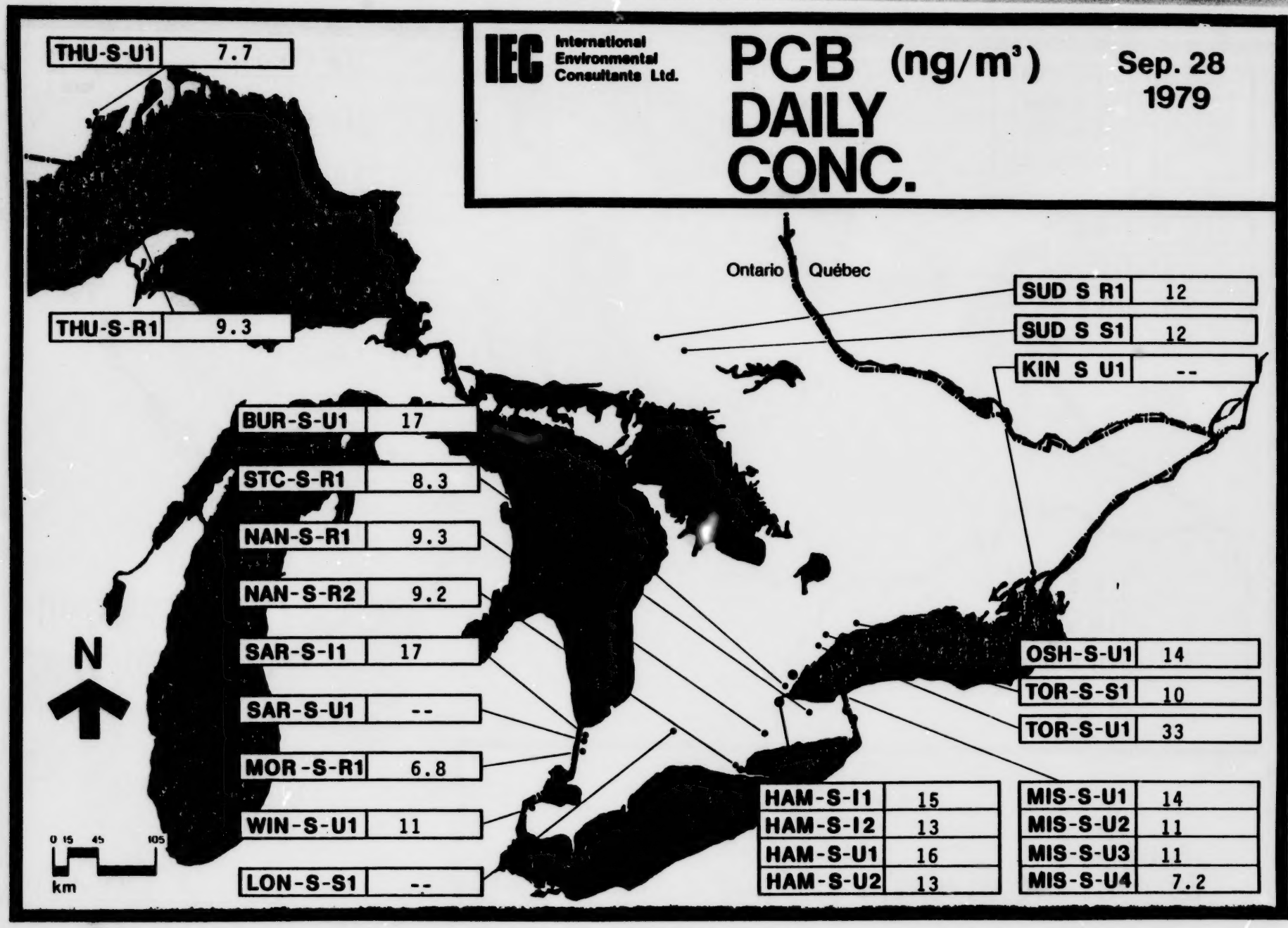
r	0.0021
SLOPE	0.0070
t	0.0104
SIG	

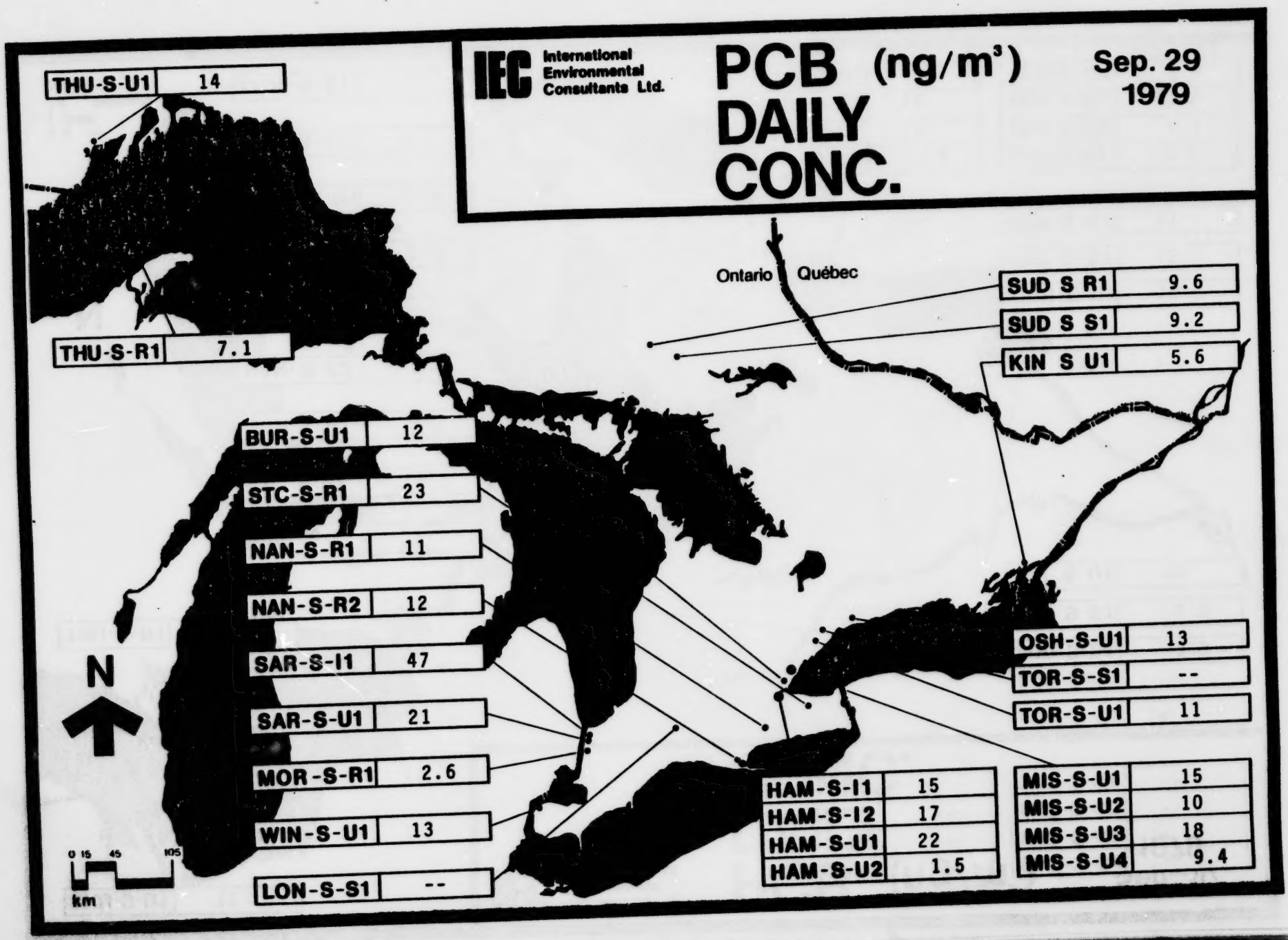

CORRELATION COEFFICIENTS VS WIND DIRECTION
START TIME: 10
VALID DAYS: 27
+*0.75
+*0.70
+*0.65
+*0.60
+*0.55
+*0.50
+*0.45
+*0.40
+*0.35
+*0.30
+*0.25
+*0.20
+*0.15
+*0.10
+*0.05
-*0.05
-*0.10
-*0.15
-*0.20
-*0.25
-*0.30
-*0.35
-*0.40
-*0.45
-*0.50
-*0.55
-*0.60
-*0.65
-*0.70
-*0.75
NNW NW WNW W WSW SW SSW S SSE SE ESE E ENE NE NN

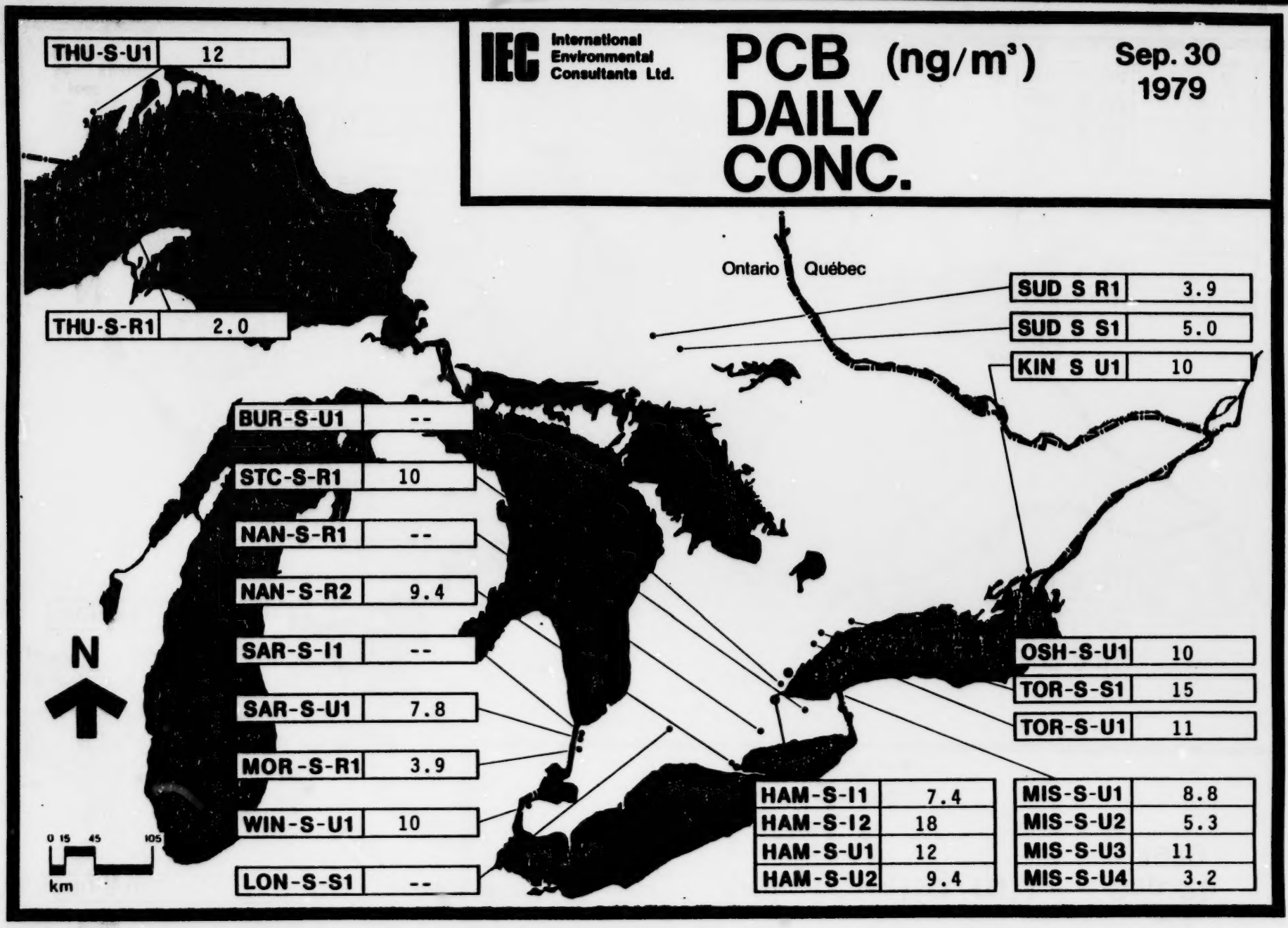
APPENDIX 4

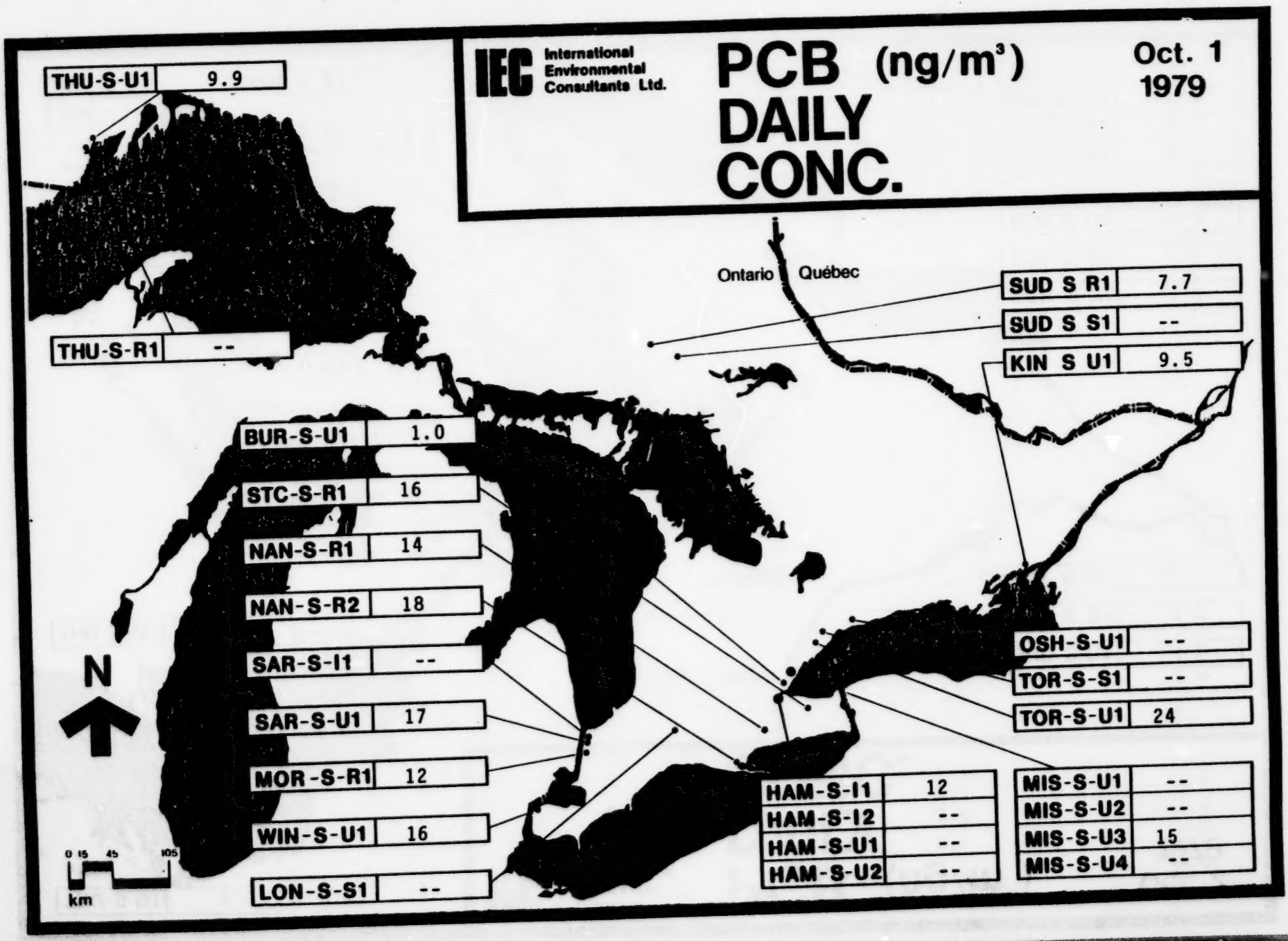
MAPS OF DAILY PCB CONCENTRATIONS

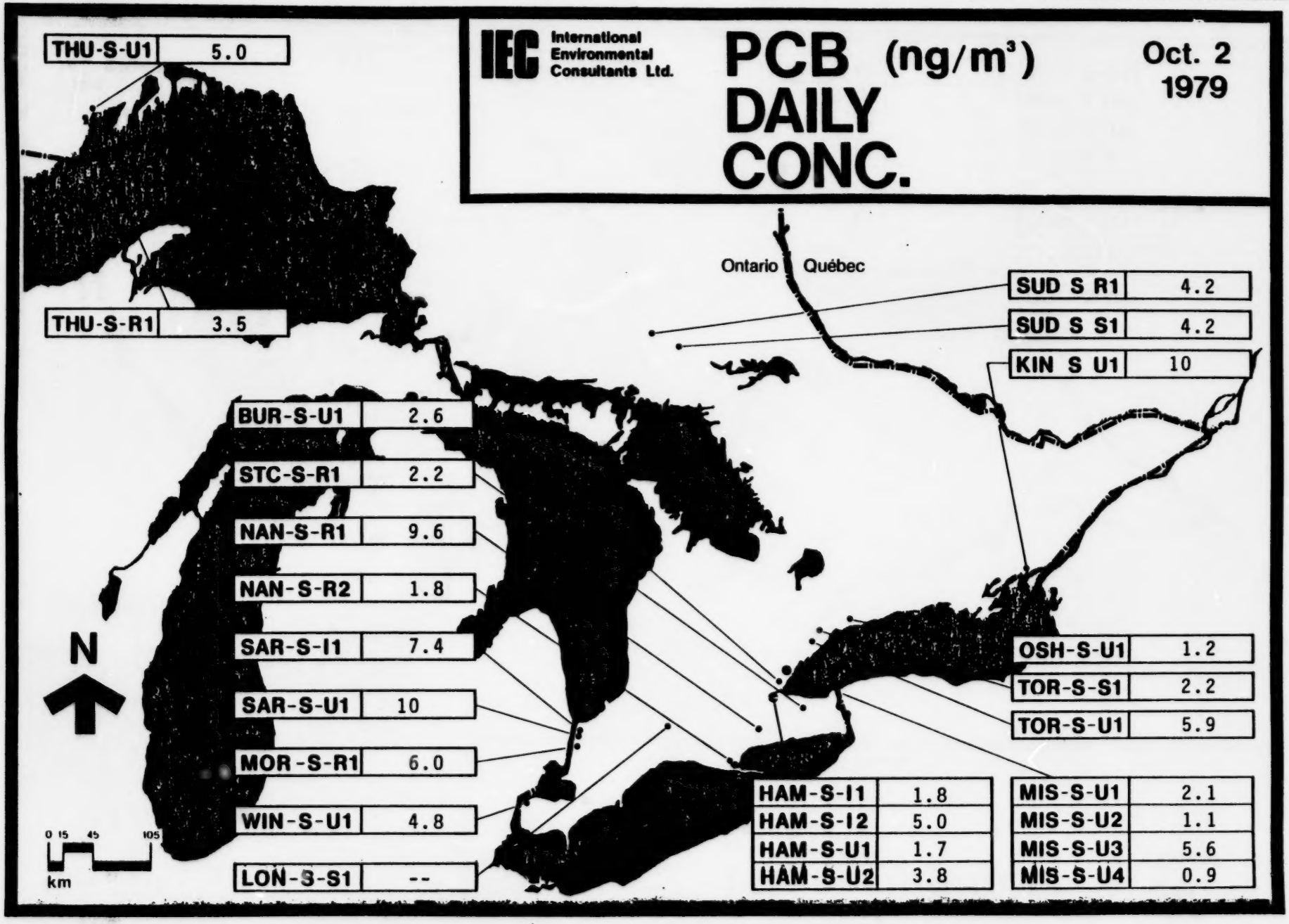

IEC International Environmental Consultants Ltd.
PCB (ng/m³) DAILY CONC.
Sep. 27 1979
Ontario
Québec
THU-S-U1 13
THU-S-R1 8.8
BUR-S-U1 10
STC-S-R1 19
NAN-S-R1 7.5
NAN-S-R2 14
SAR-S-I1 --
SAR-S-U1 20
MOR-S-R1 16
WIN-S-U1 6.6
LON-S-S1 --
SUD S R1 15
SUD S S1 4.3
KIN S U1 --
OSH-S-U1 6.6
TOR-S-S1 11
TOR-S-U1 14
HAM-S-I1 16
HAM-S-I2 --
HAM-S-U1 9.5
HAM-S-U2 10
MIS-S-U1 11
MIS-S-U2 15
MIS-S-U3 11
MIS-S-U4 12
N
0 15 45 105
km

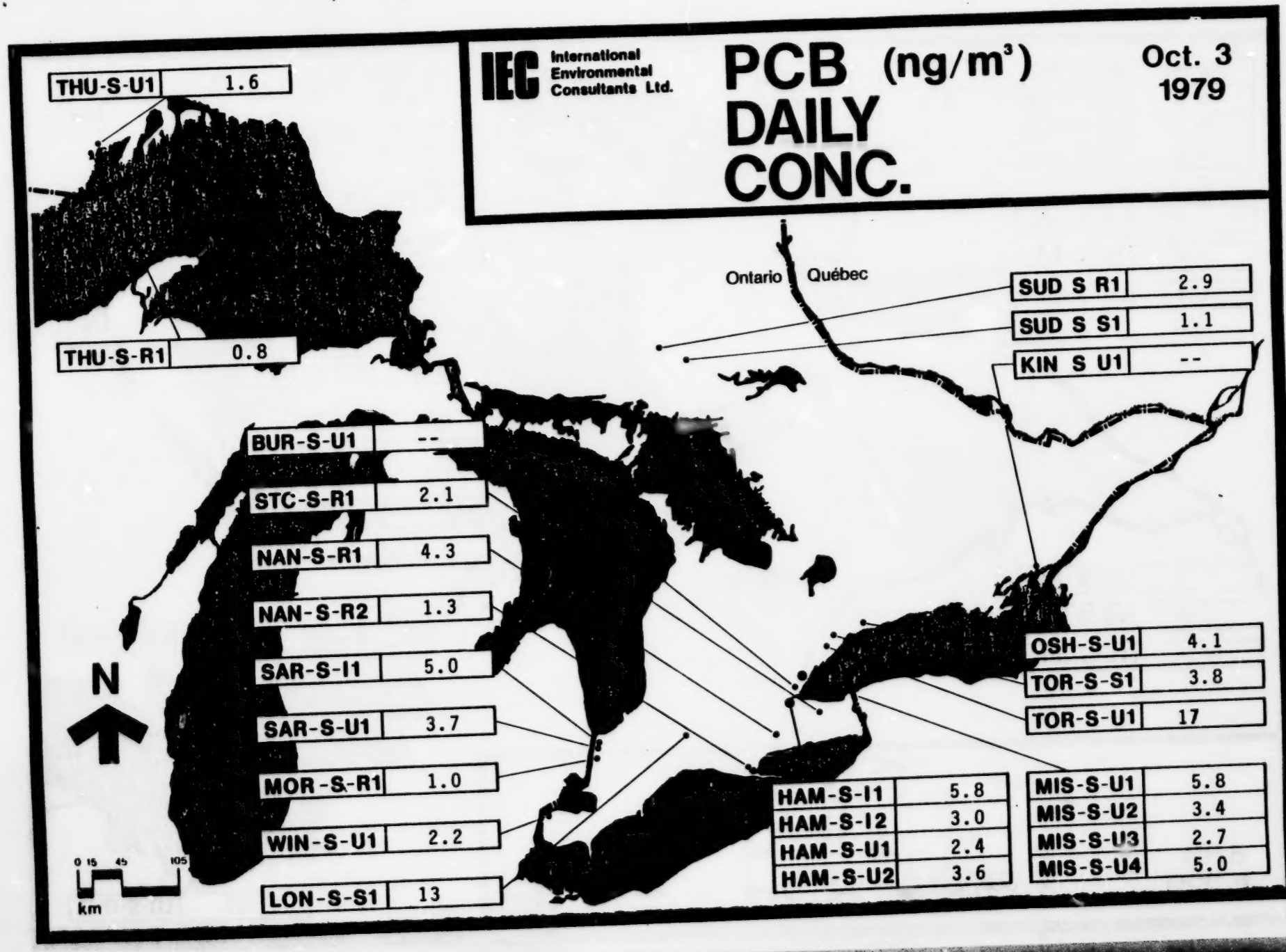

IEC International Environmental Consultants Ltd.
PCB (ng/m³) DAILY CONC.
Sep. 28 1979
Ontario
Québec
THU-S-U1 7.7
THU-S-R1 9.3
BUR-S-U1 17
STC-S-R1 8.3
NAN-S-R1 9.3
NAN-S-R2 9.2
SAR-S-I1 17
SAR-S-U1 --
MOR-S-R1 6.8
WIN-S-U1 11
LON-S-S1 --
SUD S R1 12
SUD S S1 12
KIN S U1 --
OSH-S-U1 14
TOR-S-S1 10
TOR-S-U1 33
HAM-S-I1 15
HAM-S-I2 13
HAM-S-U1 16
HAM-S-U2 13
MIS-S-U1 14
MIS-S-U2 11
MIS-S-U3 11
MIS-S-U4 7.2
N
0 15 45 105
km

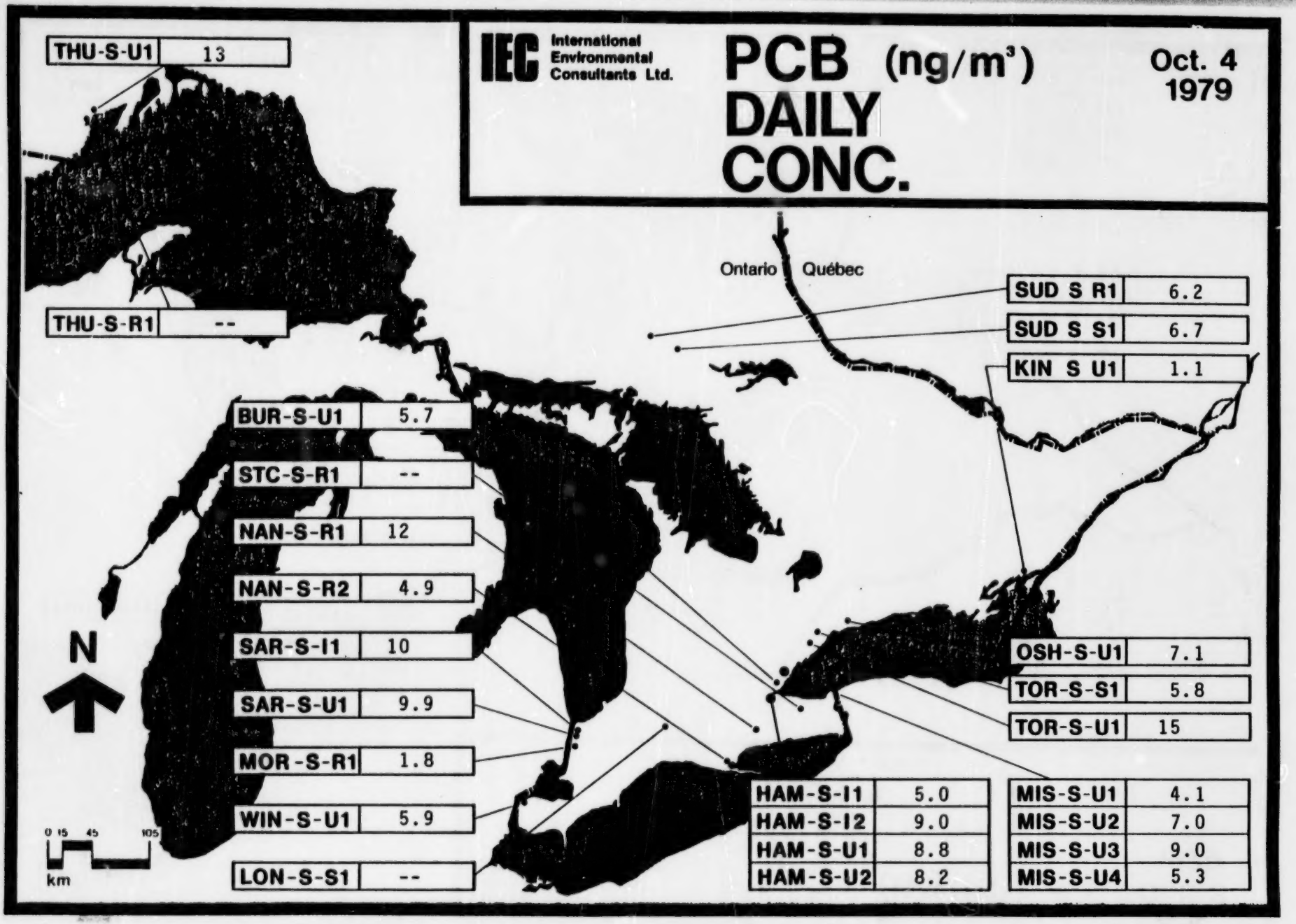

IEC International Environmental Consultants Ltd.
PCB (ng/m³) DAILY CONC.
Sep. 29 1979
Ontario
Québec
THU-S-U1 14
THU-S-R1 7.1
BUR-S-U1 12
STC-S-R1 23
NAN-S-R1 11
NAN-S-R2 12
SAR-S-I1 47
SAR-S-U1 21
MOR-S-R1 2.6
WIN-S-U1 13
LON-S-S1 --
SUD S R1 9.6
SUD S S1 9.2
KIN S U1 5.6
OSH-S-U1 13
TOR-S-S1 --
TOR-S-U1 11
HAM-S-I1 15
HAM-S-I2 17
HAM-S-U1 22
HAM-S-U2 1.5
MIS-S-U1 15
MIS-S-U2 10
MIS-S-U3 18
MIS-S-U4 9.4
N
0 15 45 105
km

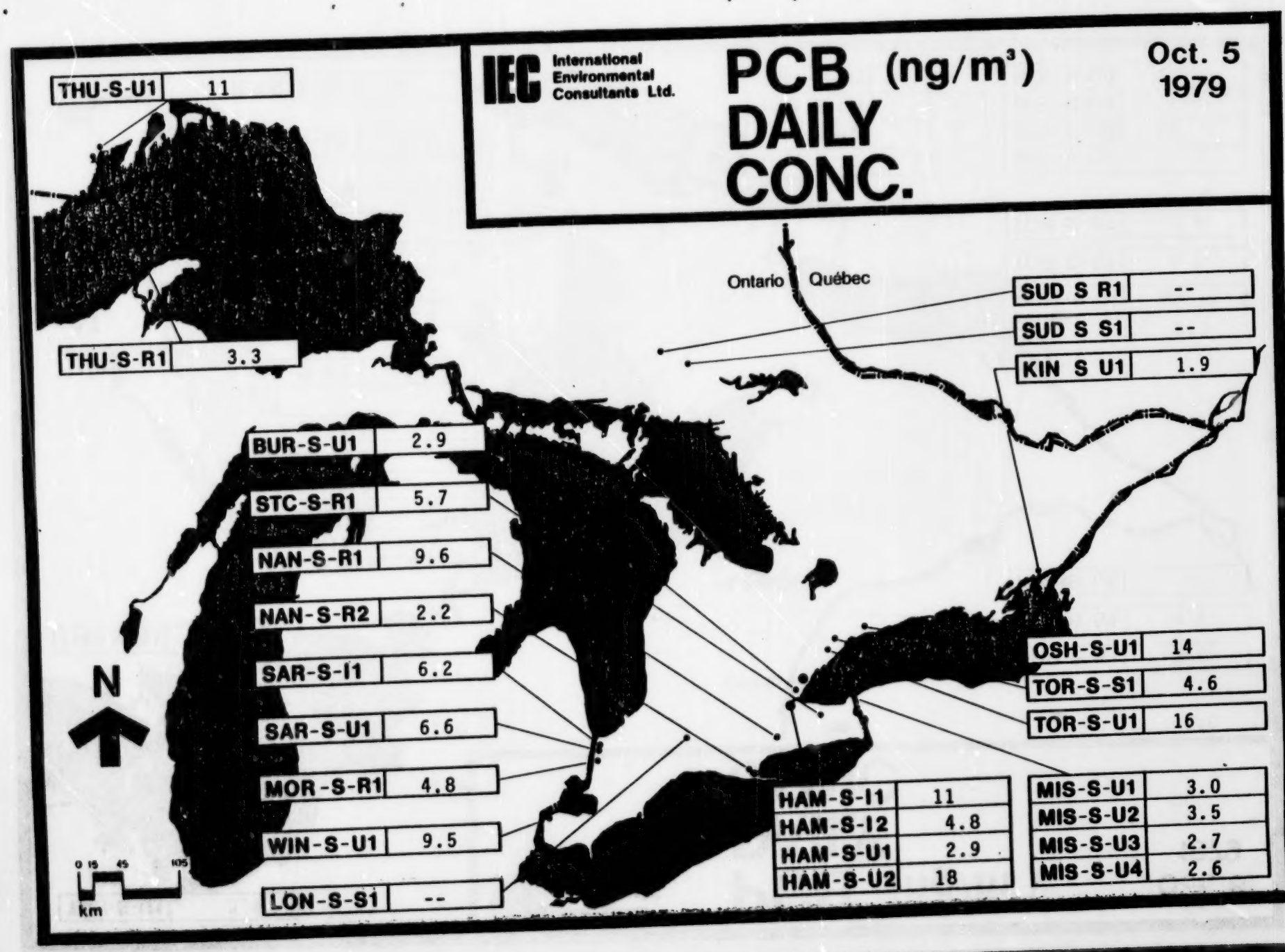

IEC International Environmental Consultants Ltd.
PCB (ng/m³) DAILY CONC.
Sep. 30 1979
Ontario
Québec
THU-S-U1 12
THU-S-R1 2.0
BUR-S-U1 --
STC-S-R1 10
NAN-S-R1 --
NAN-S-R2 9.4
SAR-S-I1 --
SAR-S-U1 7.8
MOR-S-R1 3.9
WIN-S-U1 10
LON-S-S1 --
SUD S R1 3.9
SUD S S1 5.0
KIN S U1 10
OSH-S-U1 10
TOR-S-S1 15
TOR-S-U1 11
HAM-S-I1 7.4
HAM-S-I2 18
HAM-S-U1 12
HAM-S-U2 9.4
MIS-S-U1 8.8
MIS-S-U2 5.3
MIS-S-U3 11
MIS-S-U4 3.2
N
0 15 45 105
km

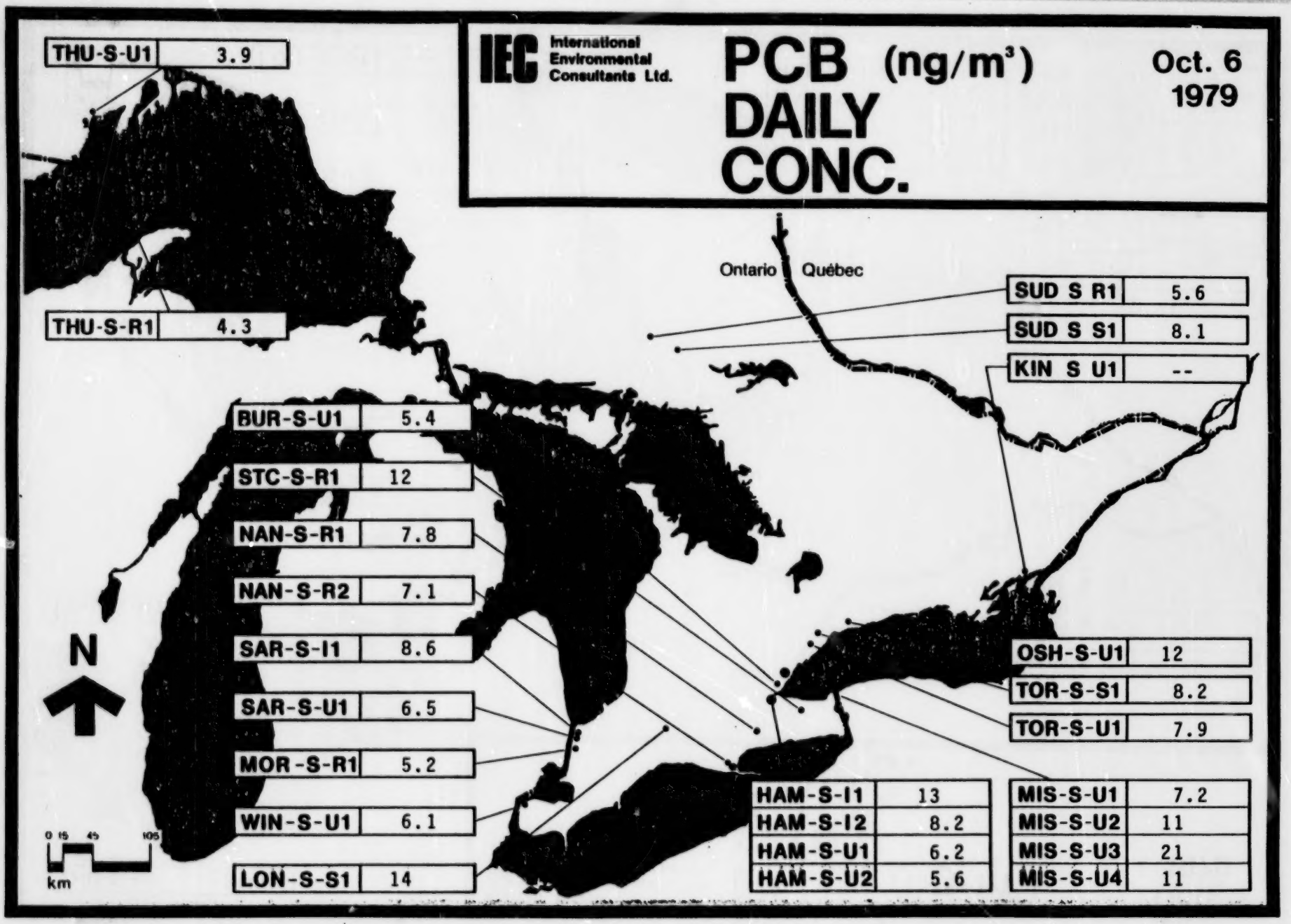

IEC International Environmental Consultants Ltd.
PCB (ng/m³) DAILY CONC.
Oct. 1 1979
THU-S-U1 9.9
THU-S-R1 --
Ontario
Québec
SUD S R1 7.7
SUD S S1 --
KIN S U1 9.5
BUR-S-U1 1.0
STC-S-R1 16
NAN-S-R1 14
NAN-S-R2 18
SAR-S-I1 --
SAR-S-U1 17
MOR-S-R1 12
WIN-S-U1 16
LON-S-S1 --
OSH-S-U1 --
TOR-S-S1 --
TOR-S-U1 24
HAM-S-I1 12
HAM-S-I2 --
HAM-S-U1 --
HAM-S-U2 --
MIS-S-U1 --
MIS-S-U2 --
MIS-S-U3 15
MIS-S-U4 --
N
0 15 45 105
km

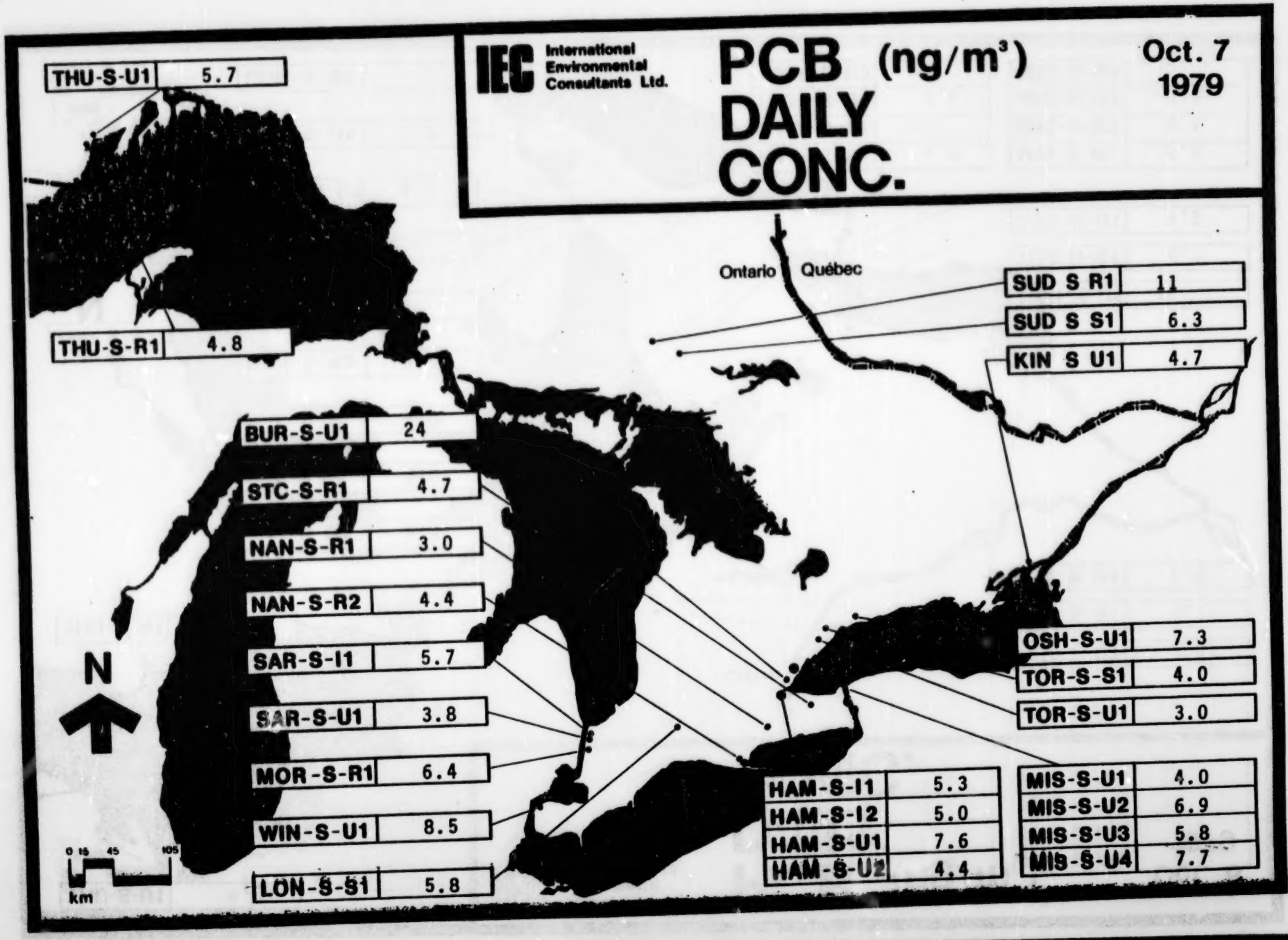

IEC International Environmental Consultants Ltd.
PCB (ng/m³) DAILY CONC.
Oct. 2 1979
Ontario
Québec
THU-S-U1 5.0
THU-S-R1 3.5
BUR-S-U1 2.6
STC-S-R1 2.2
NAN-S-R1 9.6
NAN-S-R2 1.8
SAR-S-I1 7.4
SAR-S-U1 10
MOR-S-R1 6.0
WIN-S-U1 4.8
LON-S-S1 --
SUD S R1 4.2
SUD S S1 4.2
KIN S U1 10
OSH-S-U1 1.2
TOR-S-S1 2.2
TOR-S-U1 5.9
HAM-S-I1 1.8
HAM-S-I2 5.0
HAM-S-U1 1.7
HAM-S-U2 3.8
MIS-S-U1 2.1
MIS-S-U2 1.1
MIS-S-U3 5.6
MIS-S-U4 0.9
N
0 15 45 105
km

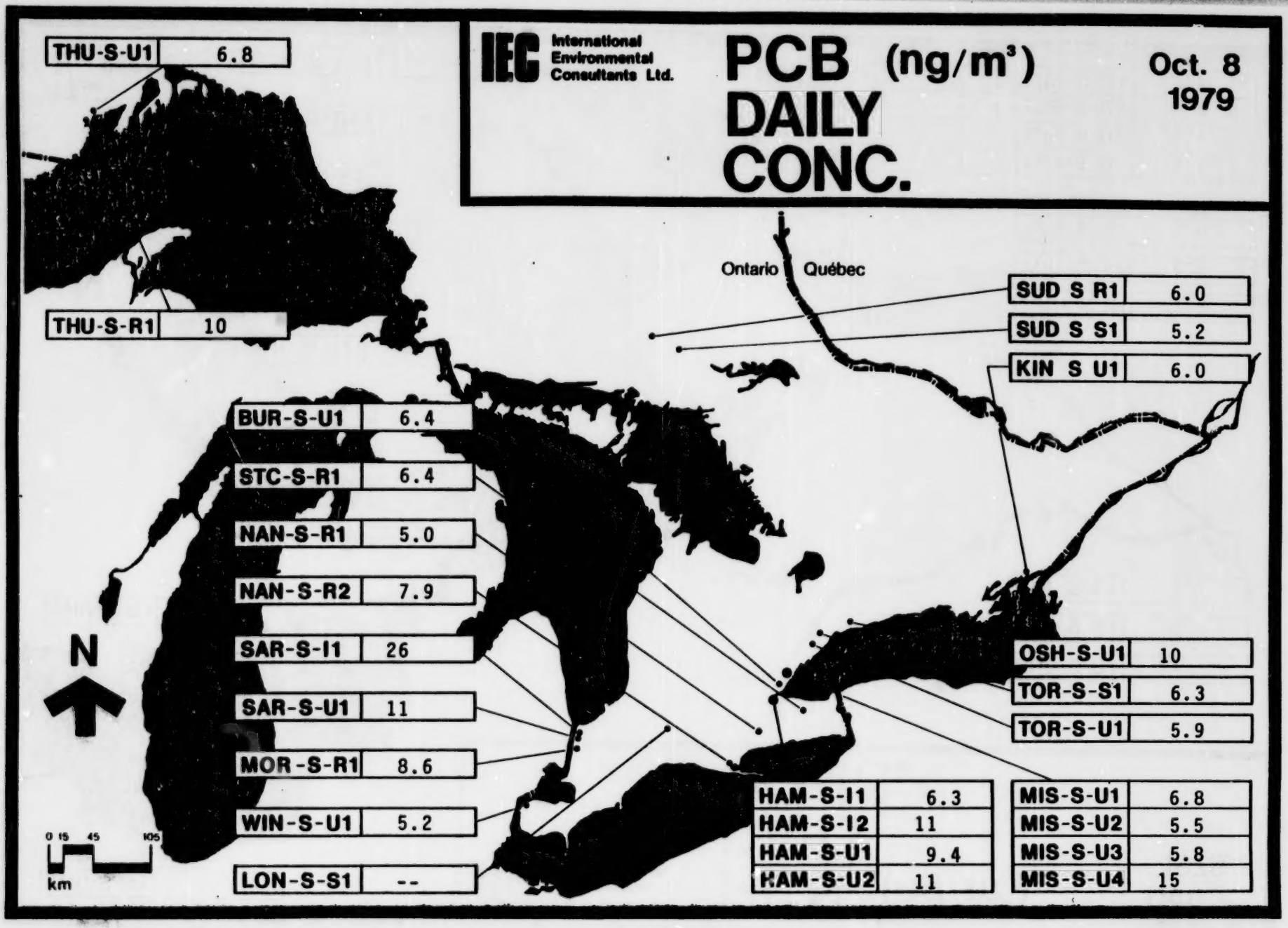

IEC International Environmental Consultants Ltd.
PCB (ng/m³) DAILY CONC.
Oct. 3 1979
Ontario
Québec
THU-S-U1 1.6
THU-S-R1 0.8
BUR-S-U1 --
STC-S-R1 2.1
NAN-S-R1 4.3
NAN-S-R2 1.3
SAR-S-I1 5.0
SAR-S-U1 3.7
MOR-S-R1 1.0
WIN-S-U1 2.2
LON-S-S1 13
SUD S R1 2.9
SUD S S1 1.1
KIN S U1 --
OSH-S-U1 4.1
TOR-S-S1 3.8
TOR-S-U1 17
HAM-S-I1 5.8
HAM-S-I2 3.0
HAM-S-U1 2.4
HAM-S-U2 3.6
MIS-S-U1 5.8
MIS-S-U2 3.4
MIS-S-U3 2.7
MIS-S-U4 5.0
N
0 15 45 105
km

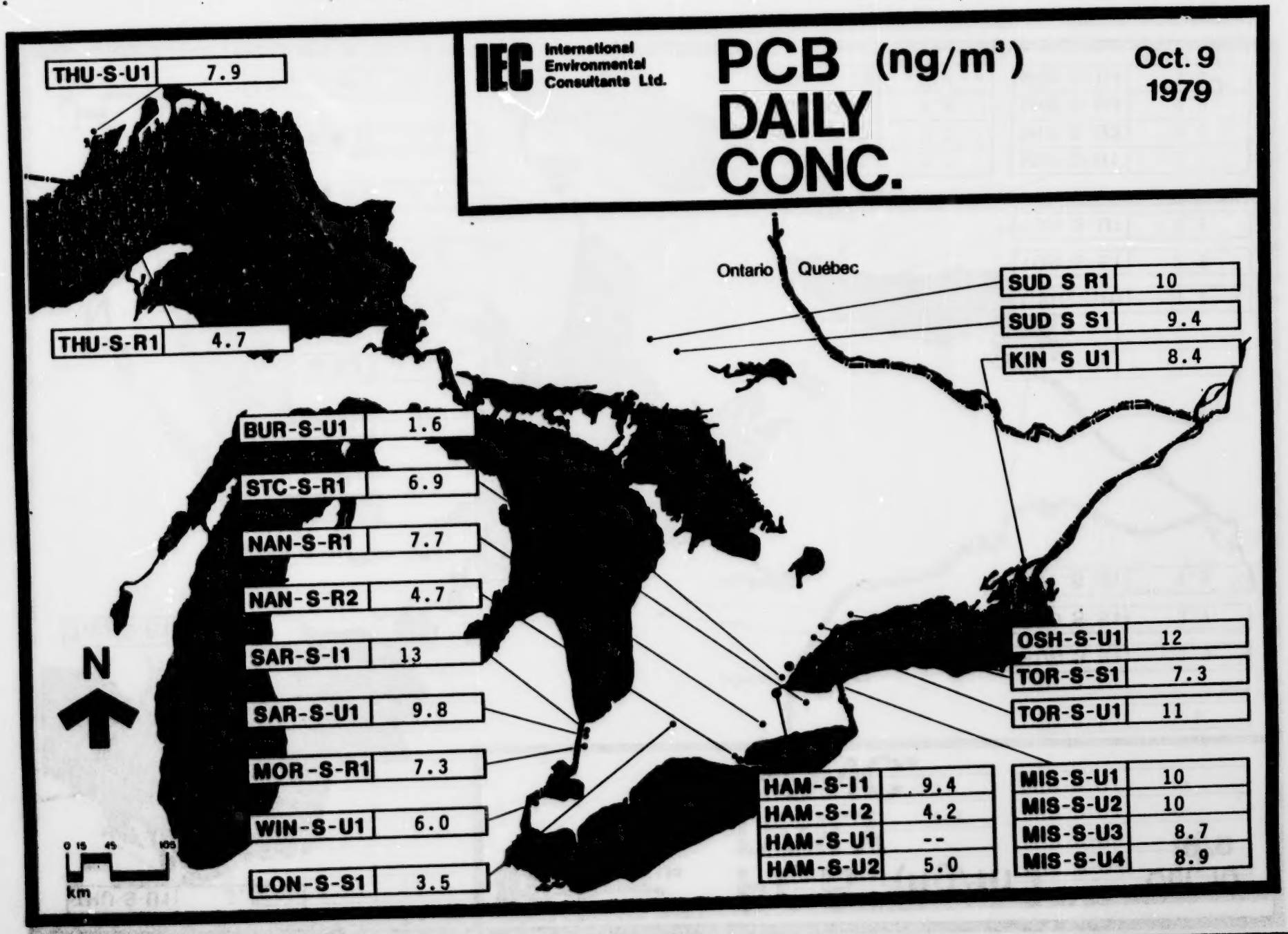

IEC International Environmental Consultants Ltd.
PCB (ng/m³) DAILY CONC.
Oct. 4 1979
Ontario
Québec
THU-S-U1 13
THU-S-R1 --
BUR-S-U1 5.7
STC-S-R1 --
NAN-S-R1 12
NAN-S-R2 4.9
SAR-S-I1 10
SAR-S-U1 9.9
MOR-S-R1 1.8
WIN-S-U1 5.9
LON-S-S1 --
SUD S R1 6.2
SUD S S1 6.7
KIN S U1 1.1
OSH-S-U1 7.1
TOR-S-S1 5.8
TOR-S-U1 15
HAM-S-I1 5.0
HAM-S-I2 9.0
HAM-S-U1 8.8
HAM-S-U2 8.2
MIS-S-U1 4.1
MIS-S-U2 7.0
MIS-S-U3 9.0
MIS-S-U4 5.3
N
0 15 45 105
km

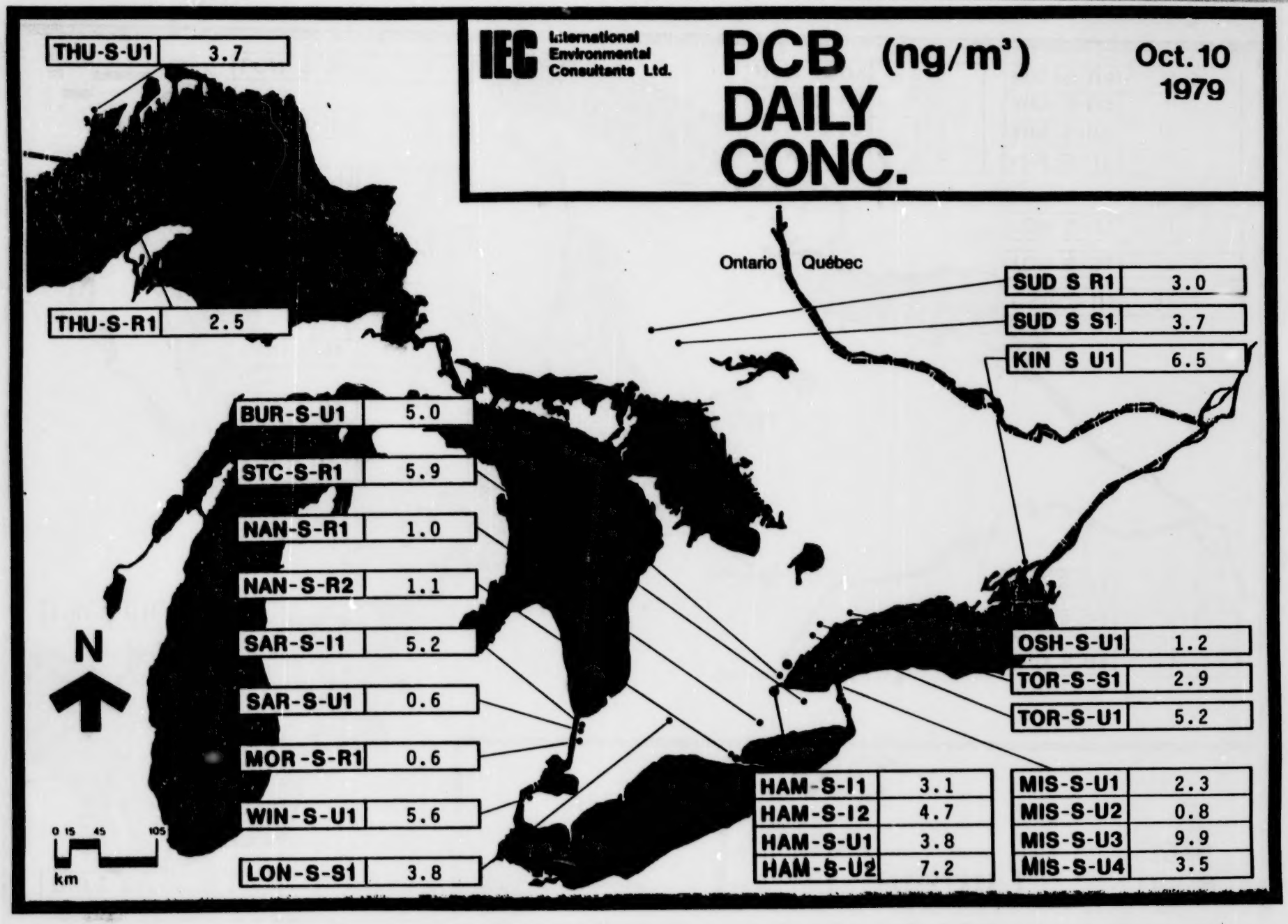

IEC International Environmental Consultants Ltd.
PCB (ng/m³) DAILY CONC.
Oct. 5 1979
Ontario
Québec
THU-S-U1 11
THU-S-R1 3.3
BUR-S-U1 2.9
STC-S-R1 5.7
NAN-S-R1 9.6
NAN-S-R2 2.2
SAR-S-I1 6.2
SAR-S-U1 6.6
MOR-S-R1 4.8
WIN-S-U1 9.5
LON-S-S1 --
SUD S R1 --
SUD S S1 --
KIN S U1 1.9
OSH-S-U1 14
TOR-S-S1 4.6
TOR-S-U1 16
HAM-S-I1 11
HAM-S-I2 4.8
HAM-S-U1 2.9
HAM-S-U2 18
MIS-S-U1 3.0
MIS-S-U2 3.5
MIS-S-U3 2.7
MIS-S-U4 2.6
N
0 15 45 105
km

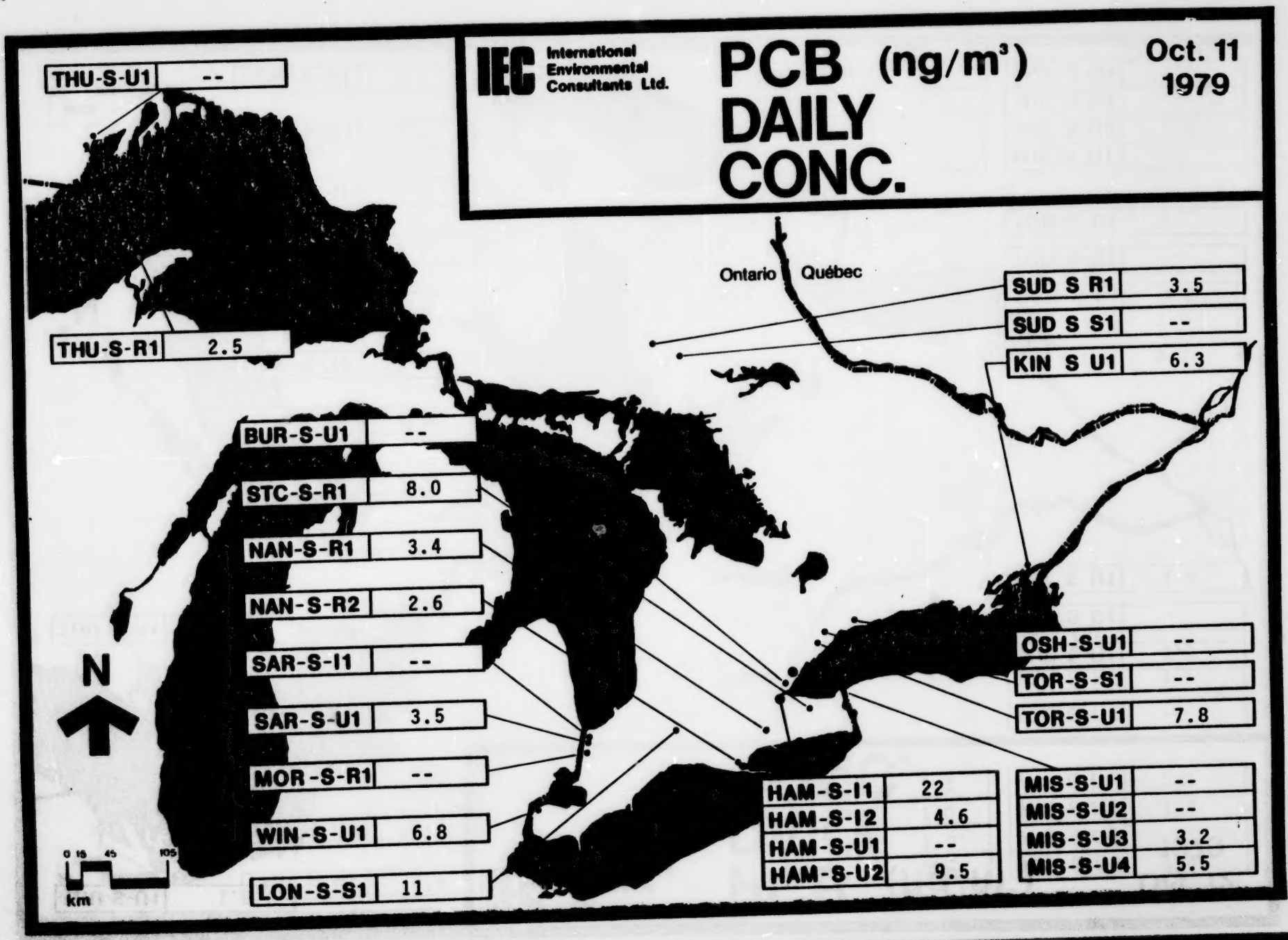

IEC International Environmental Consultants Ltd.
PCB (ng/m³) DAILY CONC.
Oct. 6 1979
Ontario
Québec
THU-S-U1 3.9
THU-S-R1 4.3
BUR-S-U1 5.4
STC-S-R1 12
NAN-S-R1 7.8
NAN-S-R2 7.1
SAR-S-I1 8.6
SAR-S-U1 6.5
MOR-S-R1 5.2
WIN-S-U1 6.1
LON-S-S1 14
SUD S R1 5.6
SUD S S1 8.1
KIN S U1 --
OSH-S-U1 12
TOR-S-S1 8.2
TOR-S-U1 7.9
HAM-S-I1 13
HAM-S-I2 8.2
HAM-S-U1 6.2
HAM-S-U2 5.6
MIS-S-U1 7.2
MIS-S-U2 11
MIS-S-U3 21
MIS-S-U4 11
N
0 15 45 105
km

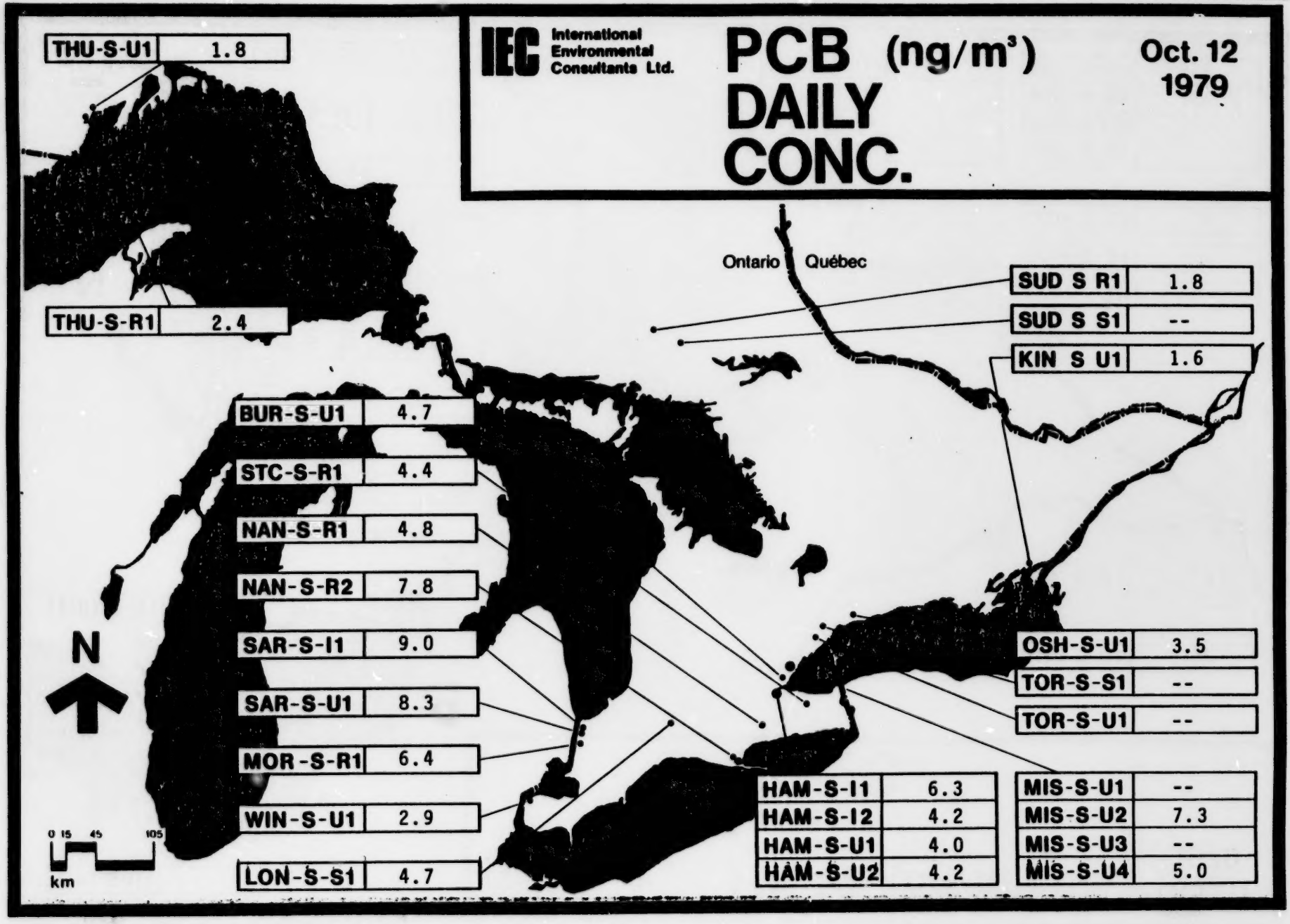

IEC International Environmental Consultants Ltd.
PCB (ng/m³) DAILY CONC.
Oct. 7 1979
Ontario
Québec
THU-S-U1 5.7
THU-S-R1 4.8
BUR-S-U1 24
STC-S-R1 4.7
NAN-S-R1 3.0
NAN-S-R2 4.4
SAR-S-I1 5.7
SAR-S-U1 3.8
MOR-S-R1 6.4
WIN-S-U1 8.5
LON-S-S1 5.8
SUD S R1 11
SUD S S1 6.3
KIN S U1 4.7
OSH-S-U1 7.3
TOR-S-S1 4.0
TOR-S-U1 3.0
HAM-S-I1 5.3
HAM-S-I2 5.0
HAM-S-U1 7.6
HAM-S-U2 4.4
MIS-S-U1 4.0
MIS-S-U2 6.9
MIS-S-U3 5.8
MIS-S-U4 7.7
N
0 15 45 105
km

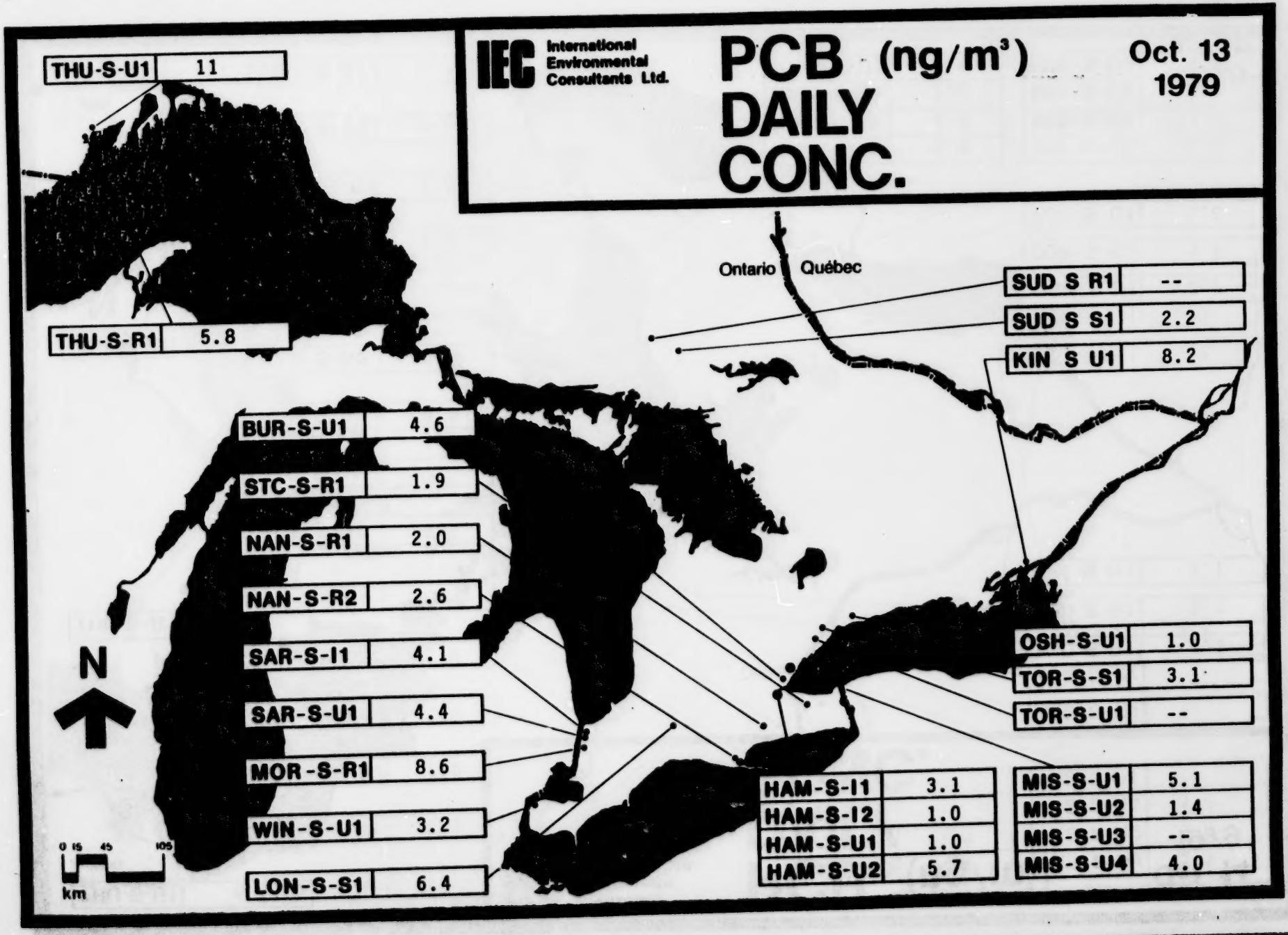

IEC International Environmental Consultants Ltd.
PCB (ng/m³) DAILY CONC.
Oct. 8 1979
Ontario
Québec
THU-S-U1 6.8
THU-S-R1 10
BUR-S-U1 6.4
STC-S-R1 6.4
NAN-S-R1 5.0
NAN-S-R2 7.9
SAR-S-I1 26
SAR-S-U1 11
MOR-S-R1 8.6
WIN-S-U1 5.2
LON-S-S1 --
SUD S R1 6.0
SUD S S1 5.2
KIN S U1 6.0
OSH-S-U1 10
TOR-S-S1 6.3
TOR-S-U1 5.9
HAM-S-I1 6.3
HAM-S-I2 11
HAM-S-U1 9.4
HAM-S-U2 11
MIS-S-U1 6.8
MIS-S-U2 5.5
MIS-S-U3 5.8
MIS-S-U4 15
N
0 15 45 105
km

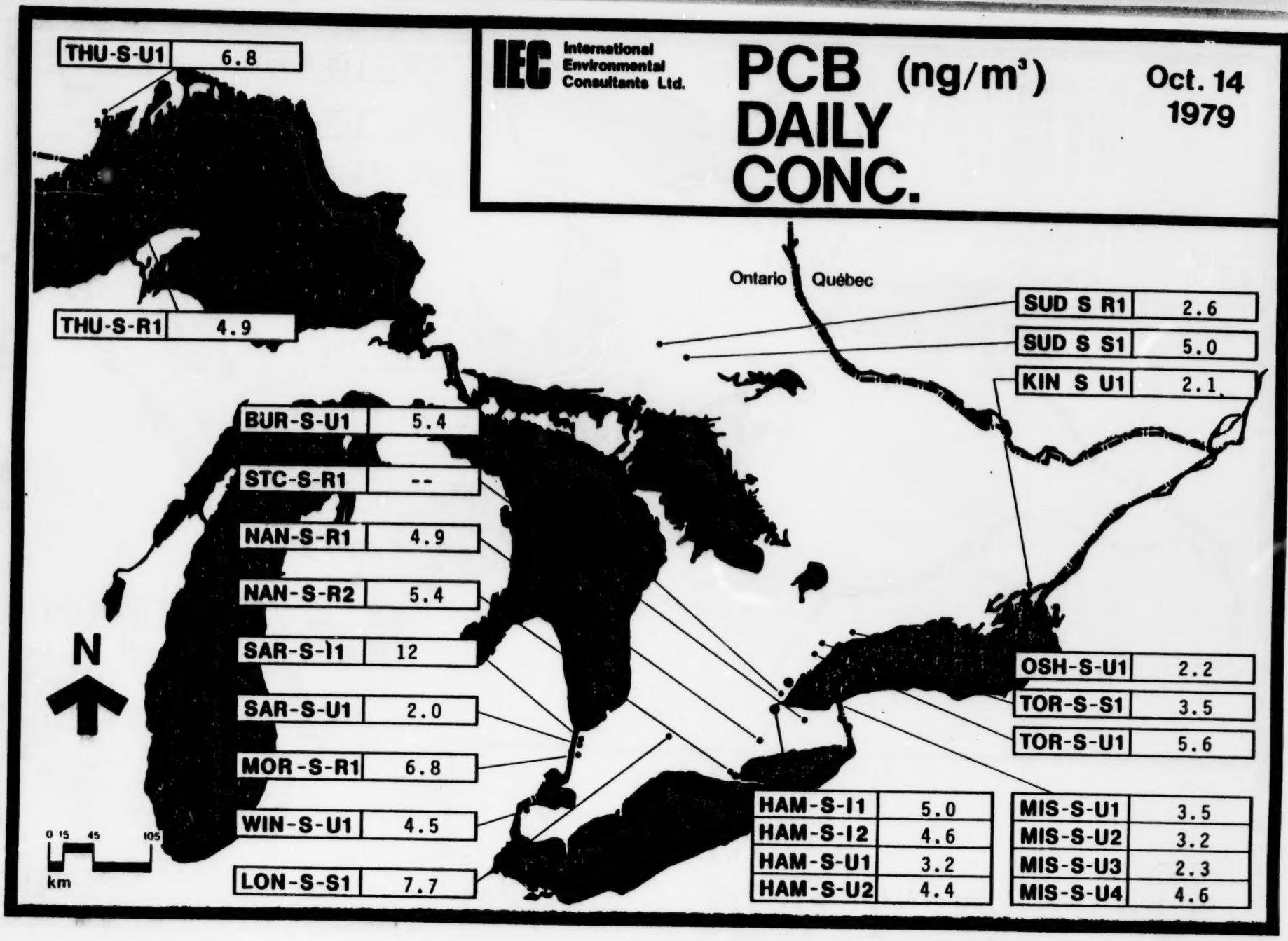

IEC International Environmental Consultants Ltd.
PCB (ng/m³)
DAILY CONC.
Oct. 9 1979
Ontario
Québec
THU-S-U1 7.9
THU-S-R1 4.7
BUR-S-U1 1.6
STC-S-R1 6.9
NAN-S-R1 7.7
NAN-S-R2 4.7
SAR-S-I1 13
SAR-S-U1 9.8
MOR-S-R1 7.3
WIN-S-U1 6.0
LON-S-S1 3.5
SUD S R1 10
SUD S S1 9.4
KIN S U1 8.4
OSH-S-U1 12
TOR-S-S1 7.3
TOR-S-U1 11
HAM-S-I1 9.4
HAM-S-I2 4.2
HAM-S-U1 --
HAM-S-U2 5.0
MIS-S-U1 10
MIS-S-U2 10
MIS-S-U3 8.7
MIS-S-U4 8.9
N
0 15 45 105
km

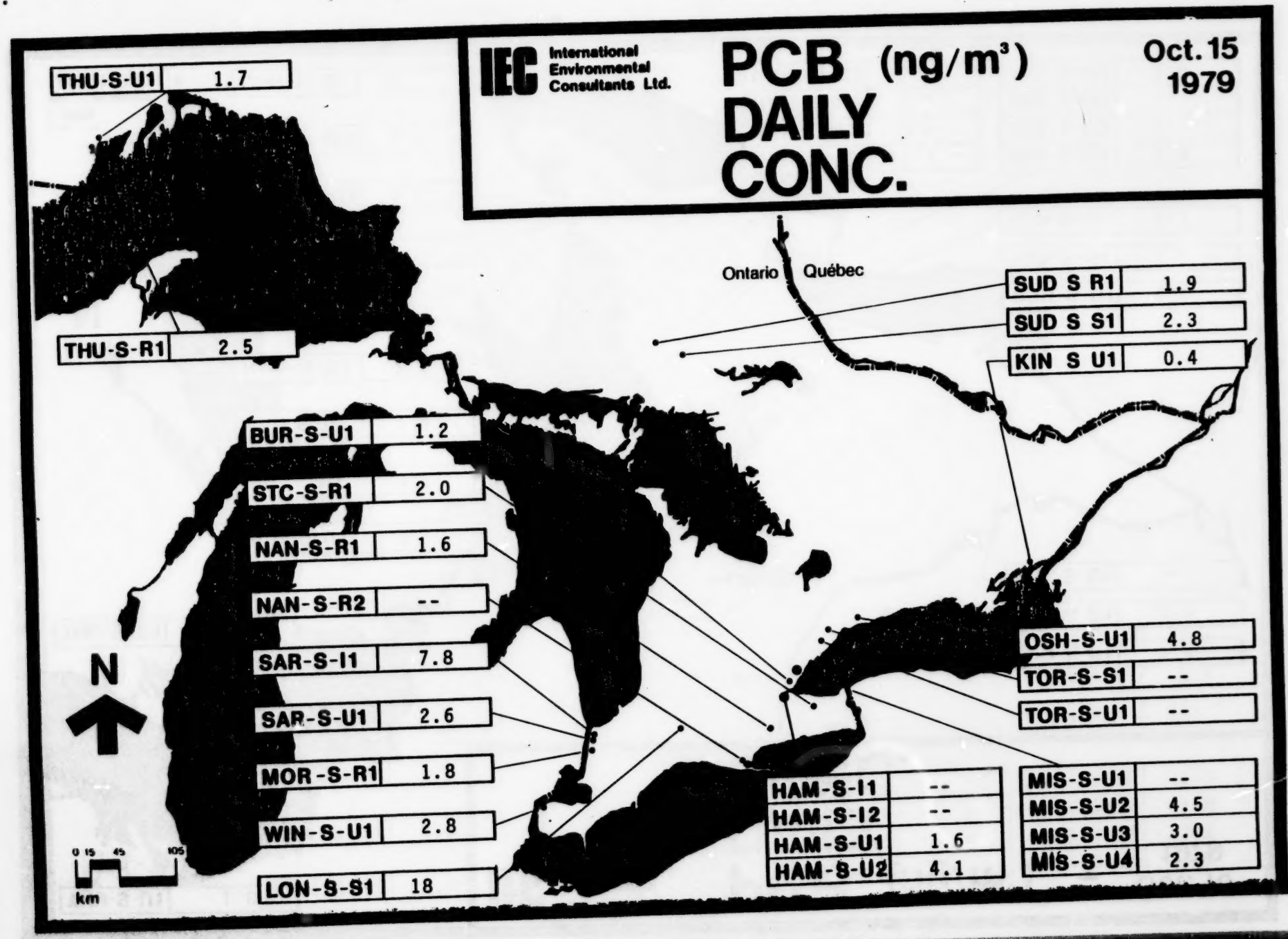

IEC International Environmental Consultants Ltd.
PCB (ng/m³) DAILY CONC.
Oct. 10 1979
Ontario
Québec
THU-S-U1 3.7
THU-S-R1 2.5
BUR-S-U1 5.0
STC-S-R1 5.9
NAN-S-R1 1.0
NAN-S-R2 1.1
SAR-S-I1 5.2
SAR-S-U1 0.6
MOR-S-R1 0.6
WIN-S-U1 5.6
LON-S-S1 3.8
SUD S R1 3.0
SUD S S1 3.7
KIN S U1 6.5
OSH-S-U1 1.2
TOR-S-S1 2.9
TOR-S-U1 5.2
HAM-S-I1 3.1
HAM-S-I2 4.7
HAM-S-U1 3.8
HAM-S-U2 7.2
MIS-S-U1 2.3
MIS-S-U2 0.8
MIS-S-U3 9.9
MIS-S-U4 3.5
N
0 15 45 105
km

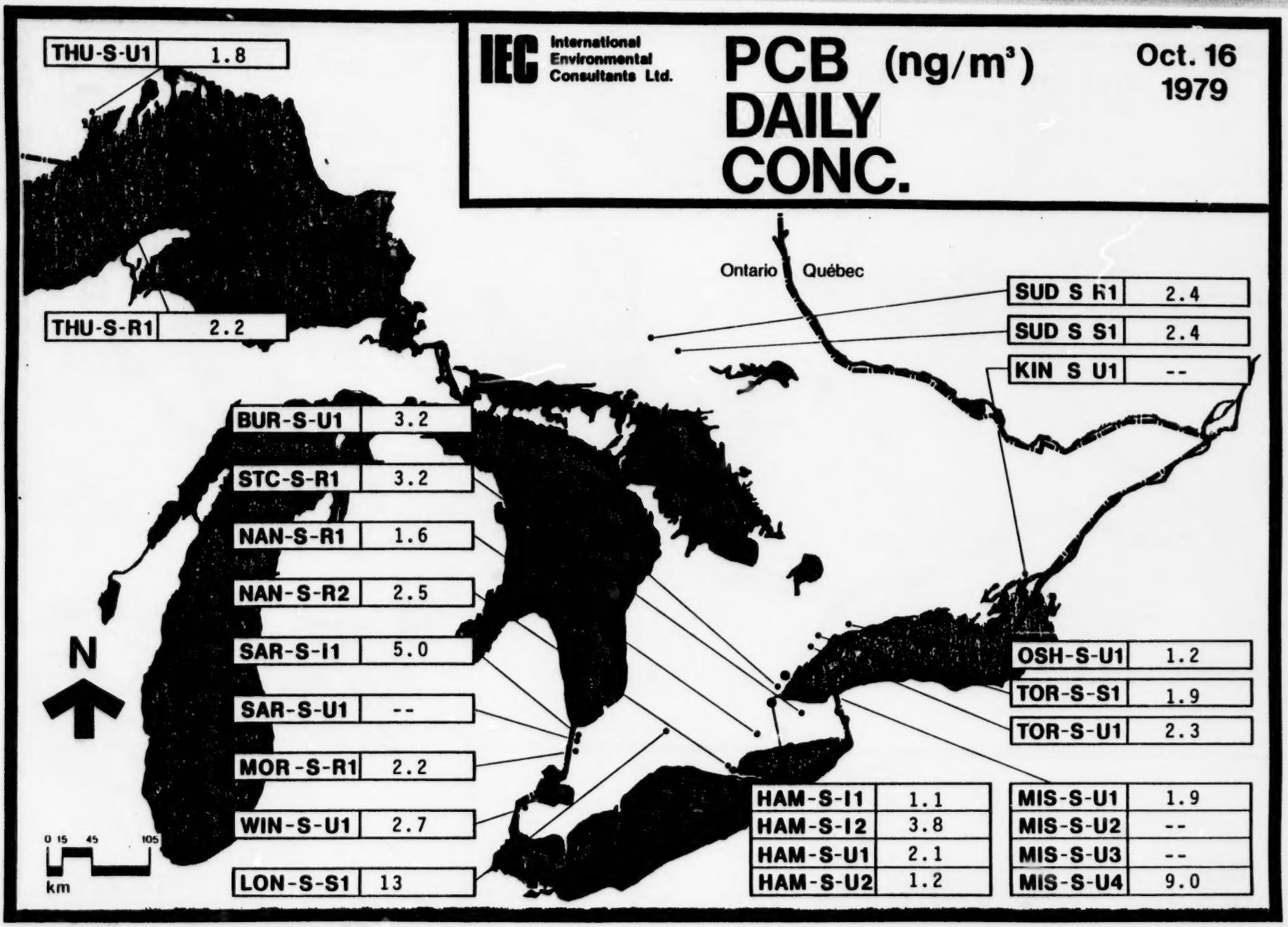

IEC International Environmental Consultants Ltd.
PCB (ng/m³) DAILY CONC.
Oct. 11 1979
Ontario
Québec
THU-S-U1 --
THU-S-R1 2.5
BUR-S-U1 --
STC-S-R1 8.0
NAN-S-R1 3.4
NAN-S-R2 2.6
SAR-S-I1 --
SAR-S-U1 3.5
MOR-S-R1 --
WIN-S-U1 6.8
LON-S-S1 11
SUD S R1 3.5
SUD S S1 --
KIN S U1 6.3
OSH-S-U1 --
TOR-S-S1 --
TOR-S-U1 7.8
HAM-S-I1 22
HAM-S-I2 4.6
HAM-S-U1 --
HAM-S-U2 9.5
MIS-S-U1 --
MIS-S-U2 --
MIS-S-U3 3.2
MIS-S-U4 5.5
N
0 15 45 105
km

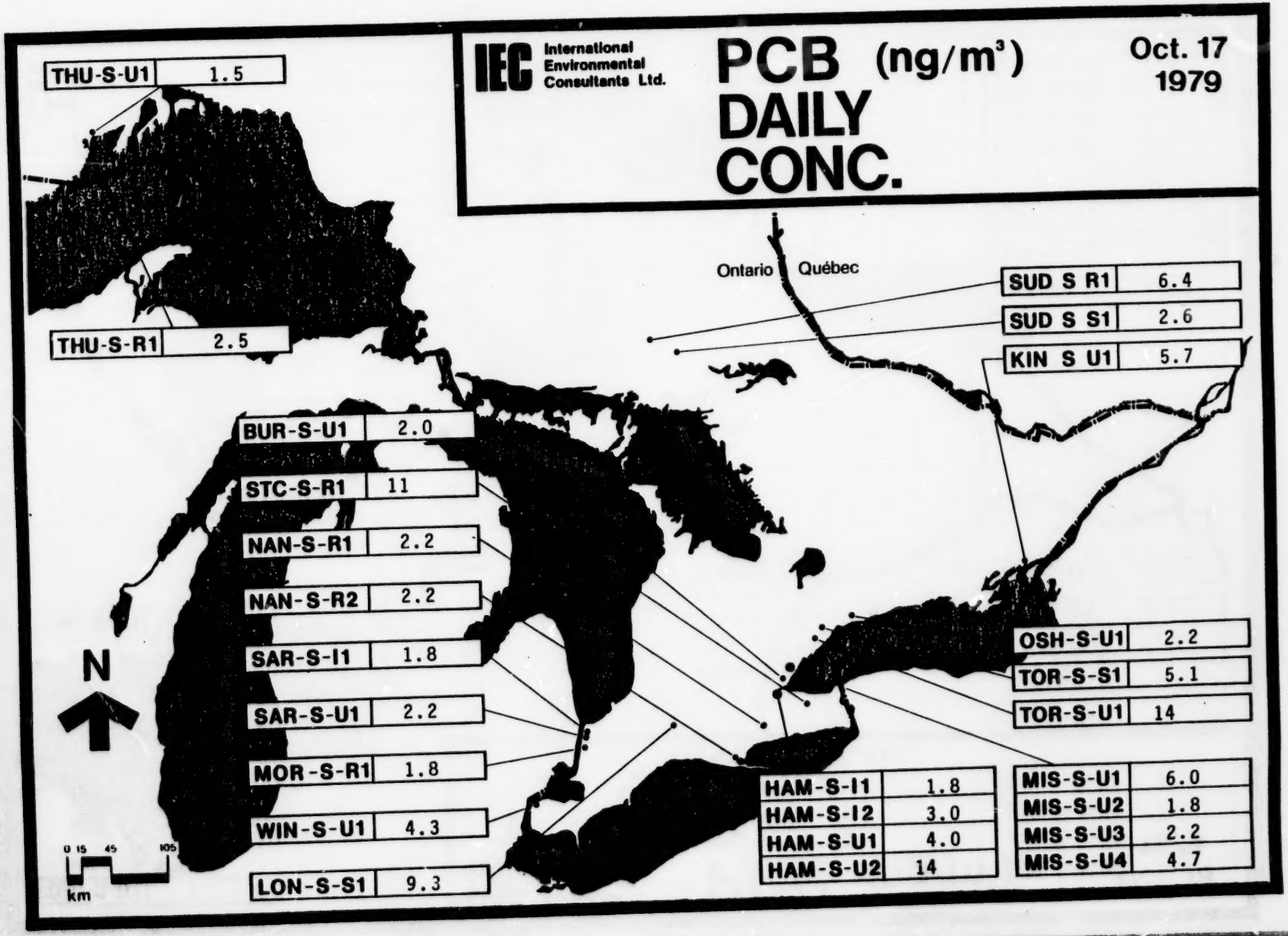

IEC International Environmental Consultants Ltd.
PCB (ng/m³) DAILY CONC.
Oct. 12 1979
Ontario
Québec
THU-S-U1 1.8
THU-S-R1 2.4
BUR-S-U1 4.7
STC-S-R1 4.4
NAN-S-R1 4.8
NAN-S-R2 7.8
SAR-S-I1 9.0
SAR-S-U1 8.3
MOR-S-R1 6.4
WIN-S-U1 2.9
LON-S-S1 4.7
SUD S R1 1.8
SUD S S1 --
KIN S U1 1.6
OSH-S-U1 3.5
TOR-S-S1 --
TOR-S-U1 --
HAM-S-I1 6.3
HAM-S-I2 4.2
HAM-S-U1 4.0
HAM-S-U2 4.2
MIS-S-U1 --
MIS-S-U2 7.3
MIS-S-U3 --
MIS-S-U4 5.0
N
0 15 45 105
km

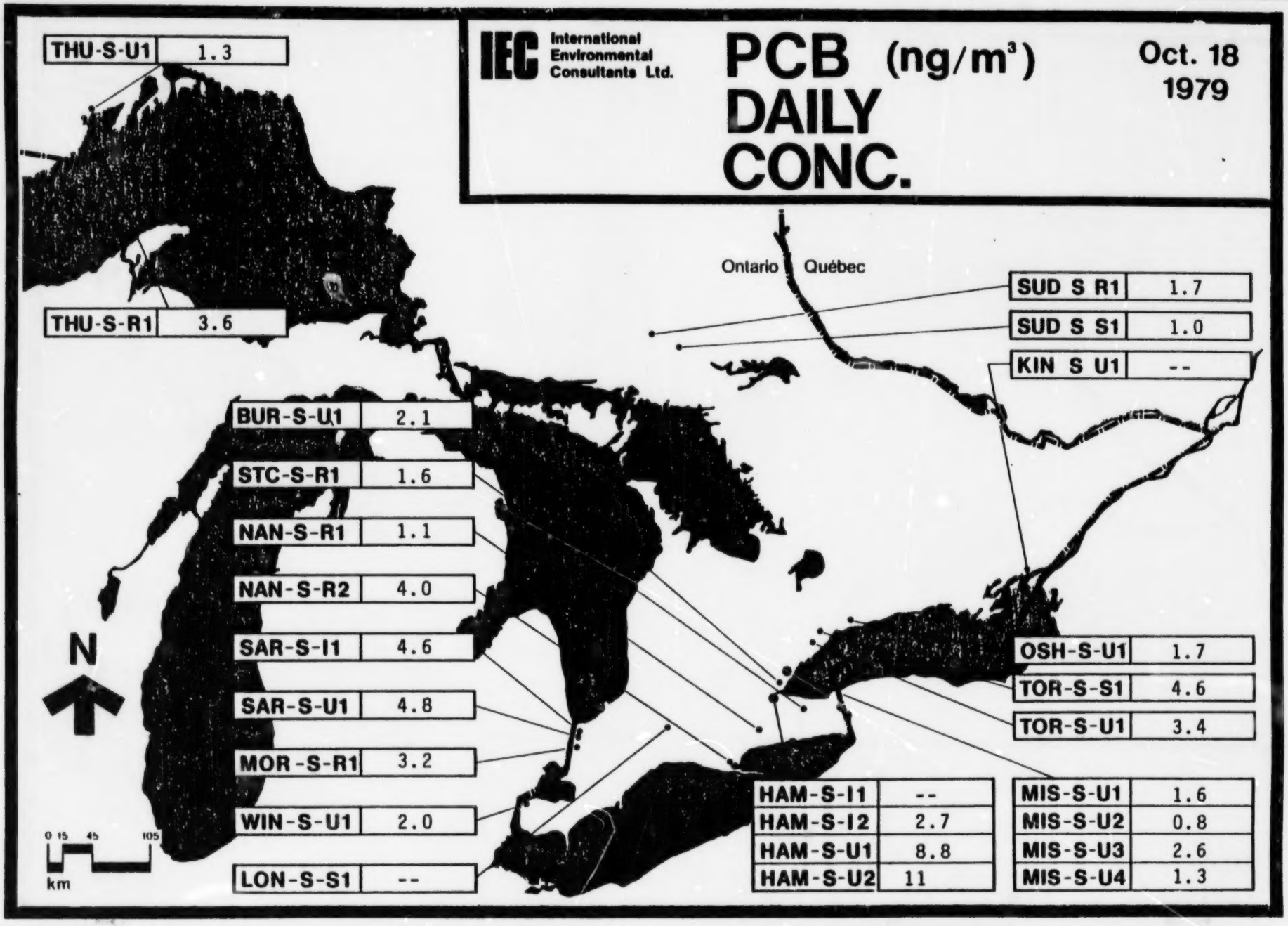

IEC International Environmental Consultants Ltd.
PCB (ng/m³) DAILY CONC.
Oct. 13 1979
Ontario
Québec
THU-S-U1 11
THU-S-R1 5.8
BUR-S-U1 4.6
STC-S-R1 1.9
NAN-S-R1 2.0
NAN-S-R2 2.6
SAR-S-I1 4.1
SAR-S-U1 4.4
MOR-S-R1 8.6
WIN-S-U1 3.2
LON-S-S1 6.4
SUD S R1 --
SUD S S1 2.2
KIN S U1 8.2
OSH-S-U1 1.0
TOR-S-S1 3.1
TOR-S-U1 --
HAM-S-I1 3.1
HAM-S-I2 1.0
HAM-S-U1 1.0
HAM-S-U2 5.7
MIS-S-U1 5.1
MIS-S-U2 1.4
MIS-S-U3 --
MIS-S-U4 4.0
N
0 15 45 105
km


IEC International Environmental Consultants Ltd.
PCB (ng/m³) DAILY CONC.
Oct. 14 1979
Ontario
Québec
THU-S-U1 6.8
THU-S-R1 4.9
BUR-S-U1 5.4
STC-S-R1 --
NAN-S-R1 4.9
NAN-S-R2 5.4
SAR-S-I1 12
SAR-S-U1 2.0
MOR-S-R1 6.8
WIN-S-U1 4.5
LON-S-S1 7.7
SUD S R1 2.6
SUD S S1 5.0
KIN S U1 2.1
OSH-S-U1 2.2
TOR-S-S1 3.5
TOR-S-U1 5.6
HAM-S-I1 5.0
HAM-S-I2 4.6
HAM-S-U1 3.2
HAM-S-U2 4.4
MIS-S-U1 3.5
MIS-S-U2 3.2
MIS-S-U3 2.3
MIS-S-U4 4.6
N
0 15 45 105
km


IEC International Environmental Consultants Ltd.
PCB (ng/m³) DAILY CONC.
Oct. 15 1979
Ontario
Québec
THU-S-U1 1.7
THU-S-R1 2.5
BUR-S-U1 1.2
STC-S-R1 2.0
NAN-S-R1 1.6
NAN-S-R2 --
SAR-S-I1 7.8
SAR-S-U1 2.6
MOR-S-R1 1.8
WIN-S-U1 2.8
LON-S-S1 18
SUD S R1 1.9
SUD S S1 2.3
KIN S U1 0.4
OSH-S-U1 4.8
TOR-S-S1 --
TOR-S-U1 --
HAM-S-I1 --
HAM-S-I2 --
HAM-S-U1 1.6
HAM-S-U2 4.1
MIS-S-U1 --
MIS-S-U2 4.5
MIS-S-U3 3.0
MIS-S-U4 2.3
N
0 15 45 105
km


IEC International Environmental Consultants Ltd.
PCB (ng/m³) DAILY CONC.
Oct. 16 1979
Ontario
Québec
THU-S-U1 1.8
THU-S-R1 2.2
BUR-S-U1 3.2
STC-S-R1 3.2
NAN-S-R1 1.6
NAN-S-R2 2.5
SAR-S-I1 5.0
SAR-S-U1 --
MOR-S-R1 2.2
WIN-S-U1 2.7
LON-S-S1 13
SUD S R1 2.4
SUD S S1 2.4
KIN S U1 --
OSH-S-U1 1.2
TOR-S-S1 1.9
TOR-S-U1 2.3
HAM-S-I1 1.1
HAM-S-I2 3.8
HAM-S-U1 2.1
HAM-S-U2 1.2
MIS-S-U1 1.9
MIS-S-U2 --
MIS-S-U3 --
MIS-S-U4 9.0
N
0 15 45 105
km


IEC International Environmental Consultants Ltd.
PCB (ng/m³) DAILY CONC.
Oct. 17 1979
Ontario
Québec
THU-S-U1 1.5
THU-S-R1 2.5
BUR-S-U1 2.0
STC-S-R1 11
NAN-S-R1 2.2
NAN-S-R2 2.2
SAR-S-I1 1.8
SAR-S-U1 2.2
MOR-S-R1 1.8
WIN-S-U1 4.3
LON-S-S1 9.3
SUD S R1 6.4
SUD S S1 2.6
KIN S U1 5.7
OSH-S-U1 2.2
TOR-S-S1 5.1
TOR-S-U1 14
HAM-S-I1 1.8
HAM-S-I2 3.0
HAM-S-U1 4.0
HAM-S-U2 14
MIS-S-U1 6.0
MIS-S-U2 1.8
MIS-S-U3 2.2
MIS-S-U4 4.7
N
0 15 45 105
km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PCB (ng/m³) DAILY CONC.
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Québec
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THU-S-R1 3.6
BUR-S-U1 2.1
STC-S-R1 1.6
NAN-S-R1 1.1
NAN-S-R2 4.0
SAR-S-I1 4.6
SAR-S-U1 4.8
MOR-S-R1 3.2
WIN-S-U1 2.0
LON-S-S1 --
SUD S R1 1.7
SUD S S1 1.0
KIN S U1 --
OSH-S-U1 1.7
TOR-S-S1 4.6
TOR-S-U1 3.4
HAM-S-I1 --
HAM-S-I2 2.7
HAM-S-U1 8.8
HAM-S-U2 11
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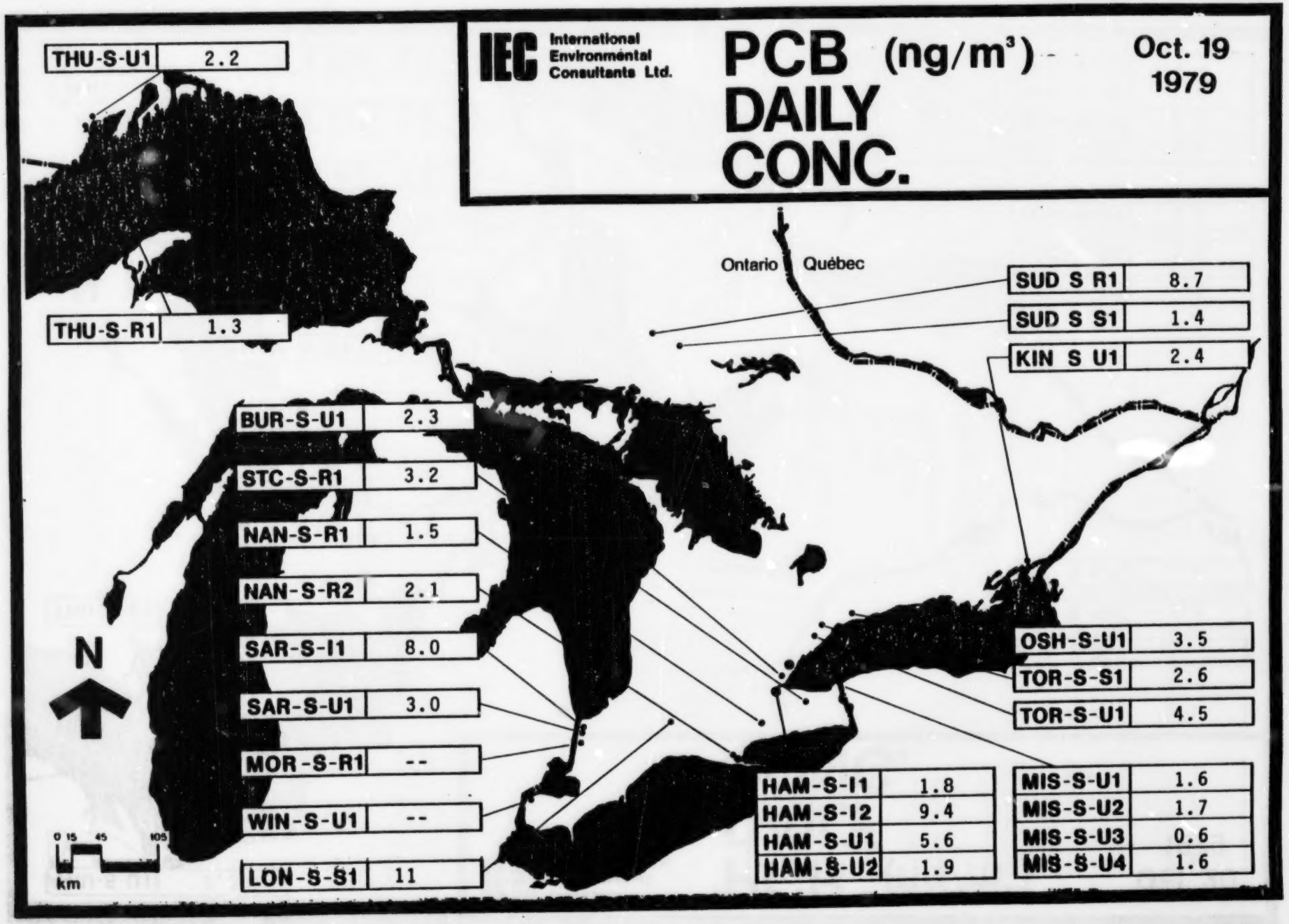
km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BUR-S-U1 2.3
STC-S-R1 3.2
NAN-S-R1 1.5
NAN-S-R2 2.1
SAR-S-I1 8.0
SAR-S-U1 3.0
MOR-S-R1 --
WIN-S-U1 --
LON-S-S1 11
SUD S R1 8.7
SUD S S1 1.4
KIN S U1 2.4
OSH-S-U1 3.5
TOR-S-S1 2.6
TOR-S-U1 4.5
HAM-S-I1 1.8
HAM-S-I2 9.4
HAM-S-U1 5.6
HAM-S-U2 1.9
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MIS-S-U2 1.7
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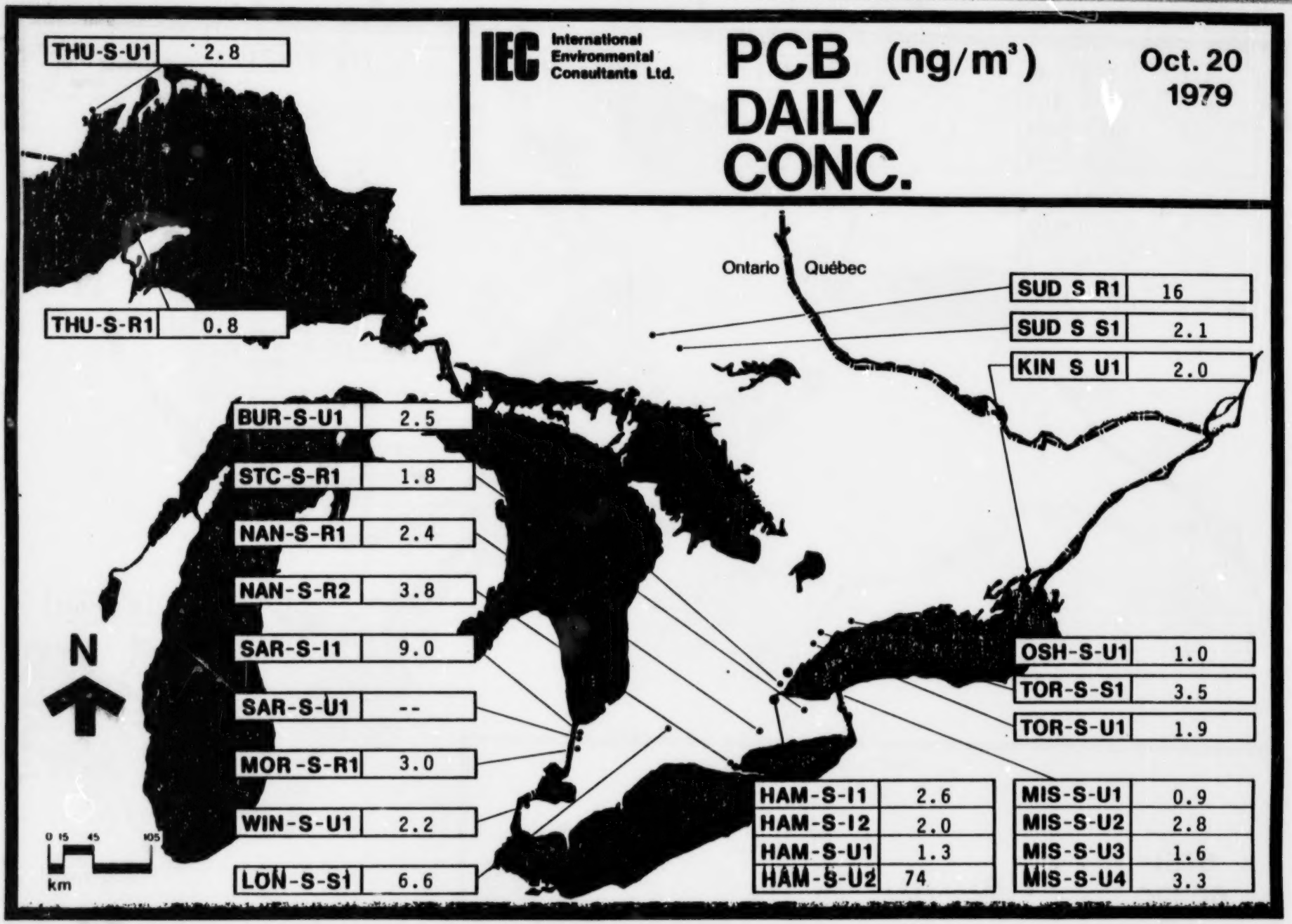
MIS-S-U4 1.6
N
0 15 45 105
km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Québec
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BUR-S-U1 2.5
STC-S-R1 1.8
NAN-S-R1 2.4
NAN-S-R2 3.8
SAR-S-I1 9.0
SAR-S-U1 --
MOR-S-R1 3.0
WIN-S-U1 2.2
LON-S-S1 6.6
SUD S R1 16
SUD S S1 2.1
KIN S U1 2.0
OSH-S-U1 1.0
TOR-S-S1 3.5
TOR-S-U1 1.9
HAM-S-I1 2.6
HAM-S-I2 2.0
HAM-S-U1 1.3
HAM-S-U2 74
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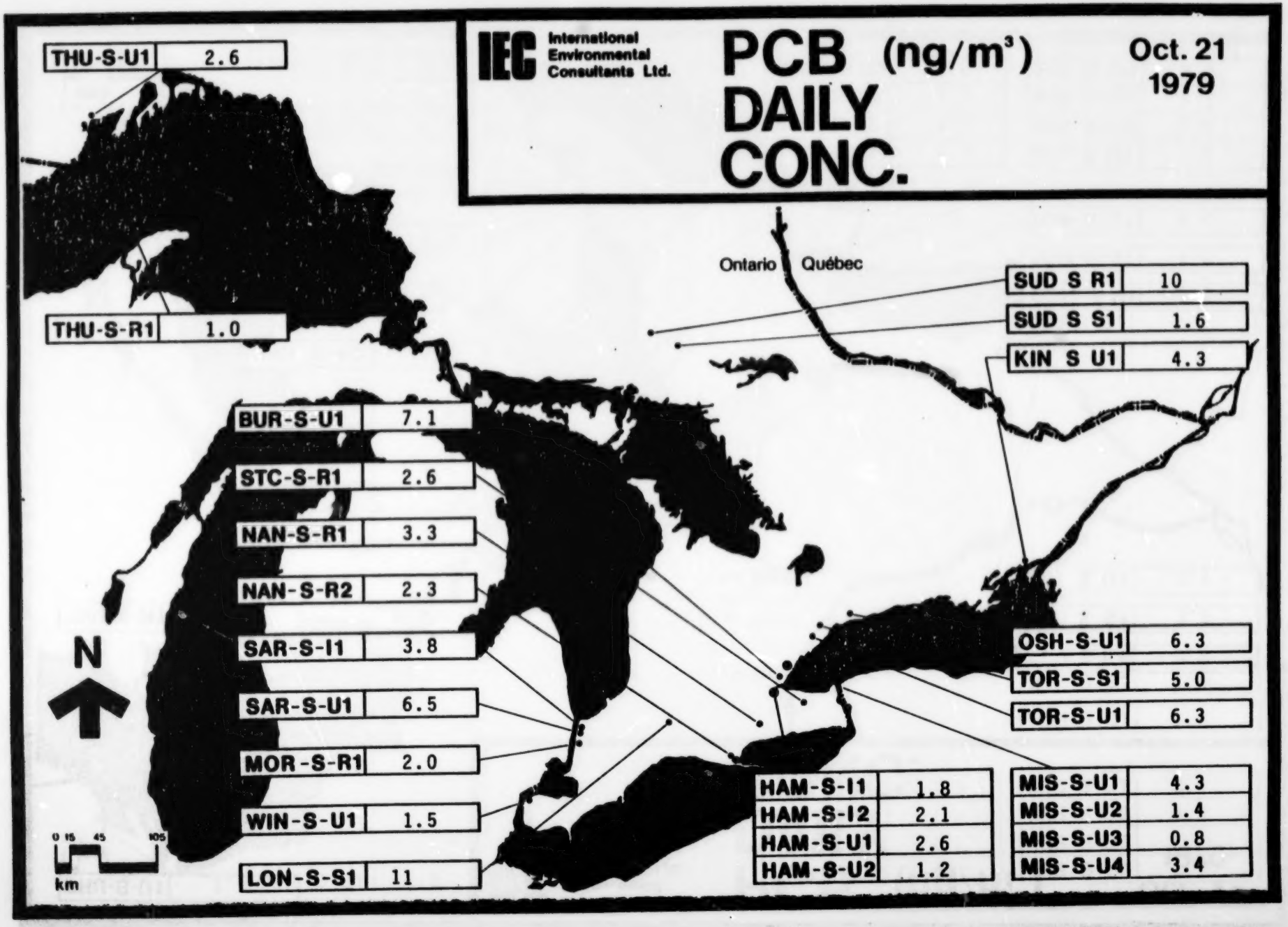
N
0 15 45 105
km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PCB (ng/m³) DAILY CONC.
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Ontario
Québec
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BUR-S-U1 7.1
STC-S-R1 2.6
NAN-S-R1 3.3
NAN-S-R2 2.3
SAR-S-I1 3.8
SAR-S-U1 6.5
MOR-S-R1 2.0
WIN-S-U1 1.5
LON-S-S1 11
SUD S R1 10
SUD S S1 1.6
KIN S U1 4.3
OSH-S-U1 6.3
TOR-S-S1 5.0
TOR-S-U1 6.3
HAM-S-I1 1.8
HAM-S-I2 2.1
HAM-S-U1 2.6
HAM-S-U2 1.2
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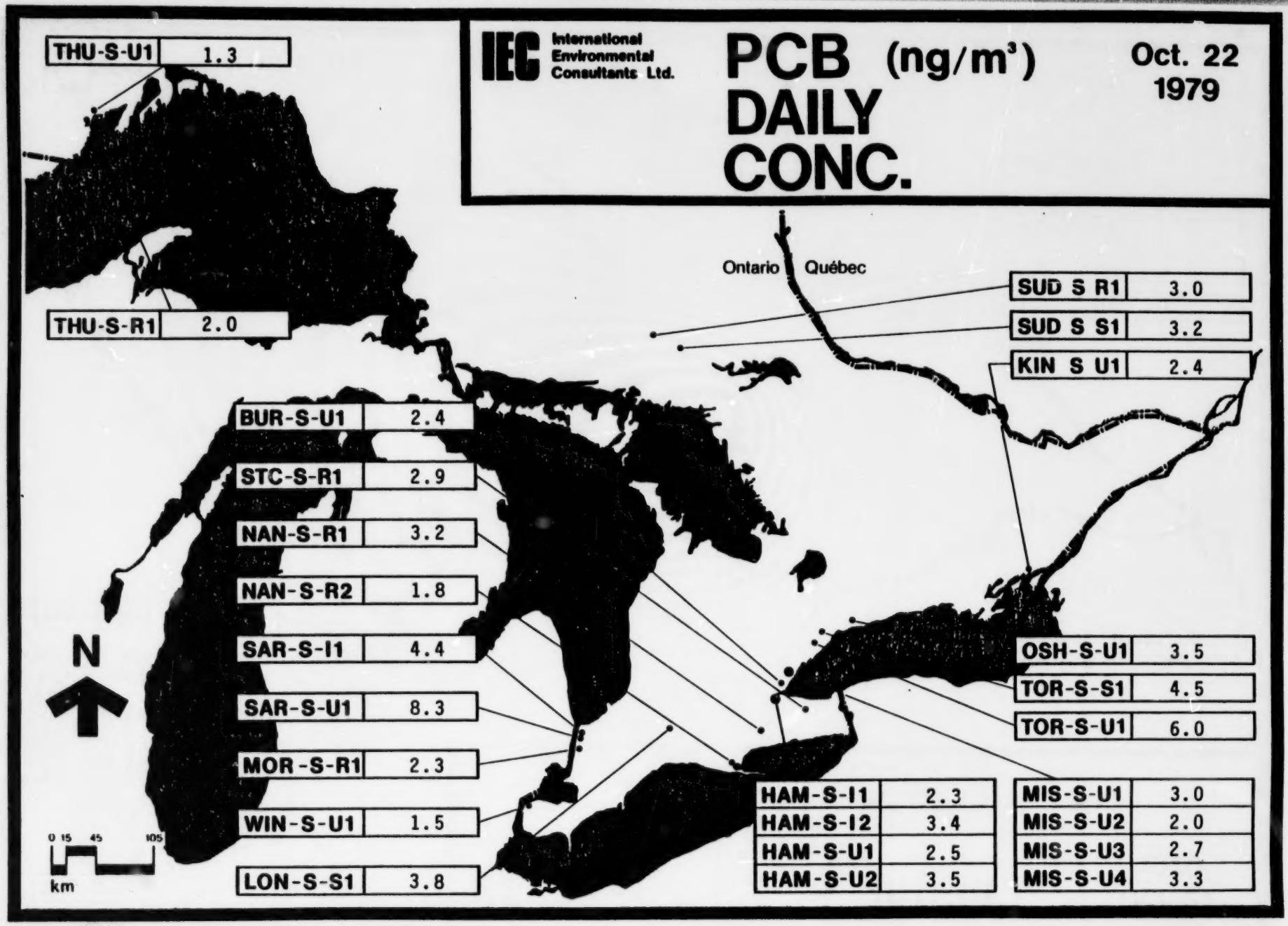
N
0 15 45 105
km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BUR-S-U1 2.4
STC-S-R1 2.9
NAN-S-R1 3.2
NAN-S-R2 1.8
SAR-S-I1 4.4
SAR-S-U1 8.3
MOR-S-R1 2.3
WIN-S-U1 1.5
LON-S-S1 3.8
SUD S R1 3.0
SUD S S1 3.2
KIN S U1 2.4
OSH-S-U1 3.5
TOR-S-S1 4.5
TOR-S-U1 6.0
HAM-S-I1 2.3
HAM-S-I2 3.4
HAM-S-U1 2.5
HAM-S-U2 3.5
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MIS-S-U2 2.0
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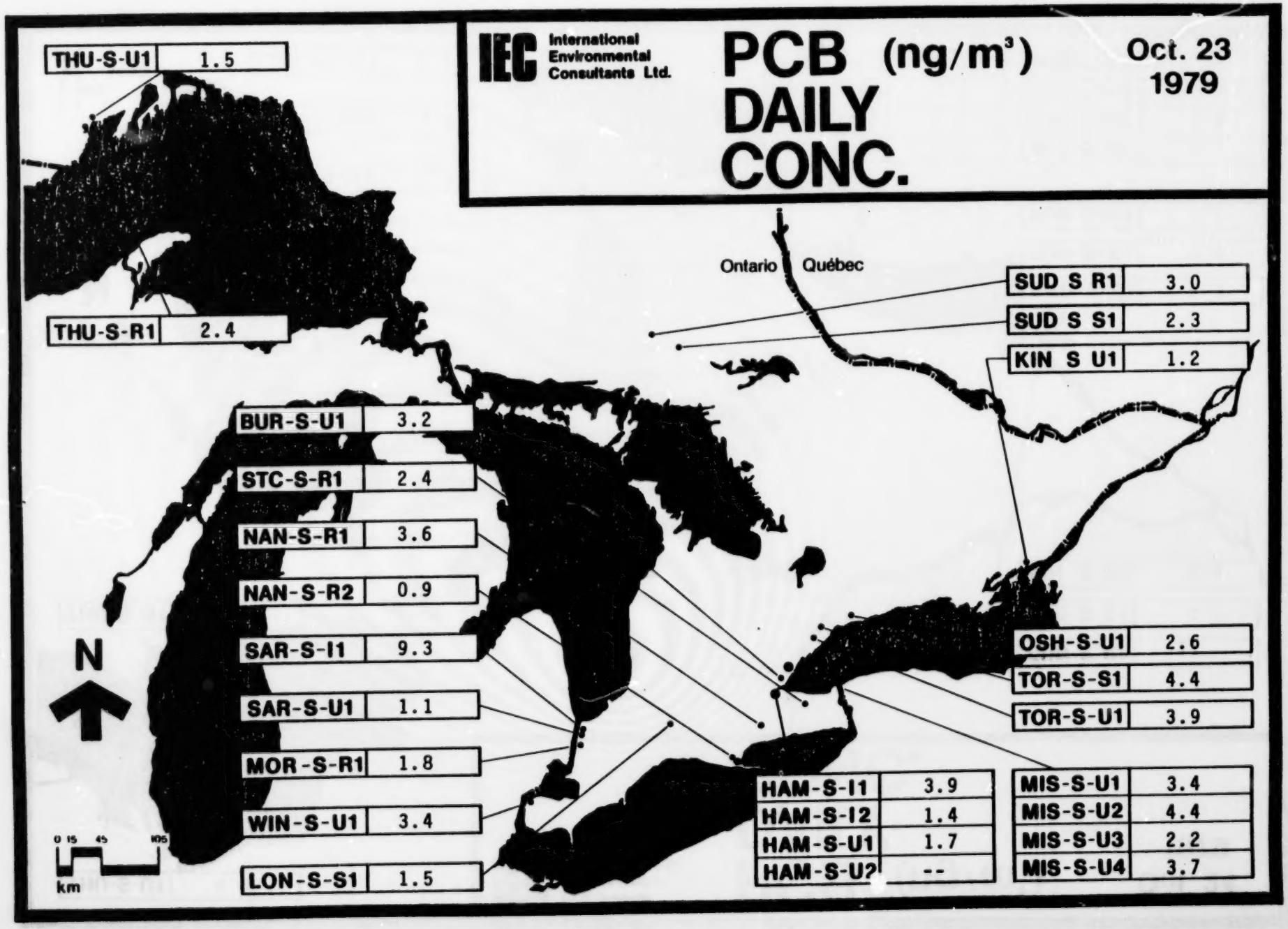
MIS-S-U4 3.3
N
0 15 45 105
km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PCB (ng/m³) DAILY CONC.
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Québec
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THU-S-R1 2.4
BUR-S-U1 3.2
STC-S-R1 2.4
NAN-S-R1 3.6
NAN-S-R2 0.9
SAR-S-I1 9.3
SAR-S-U1 1.1
MOR-S-R1 1.8
WIN-S-U1 3.4
LON-S-S1 1.5
SUD S R1 3.0
SUD S S1 2.3
KIN S U1 1.2
OSH-S-U1 2.6
TOR-S-S1 4.4
TOR-S-U1 3.9
HAM-S-I1 3.9
HAM-S-I2 1.4
HAM-S-U1 1.7
HAM-S-U? --
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MIS-S-U2 4.4
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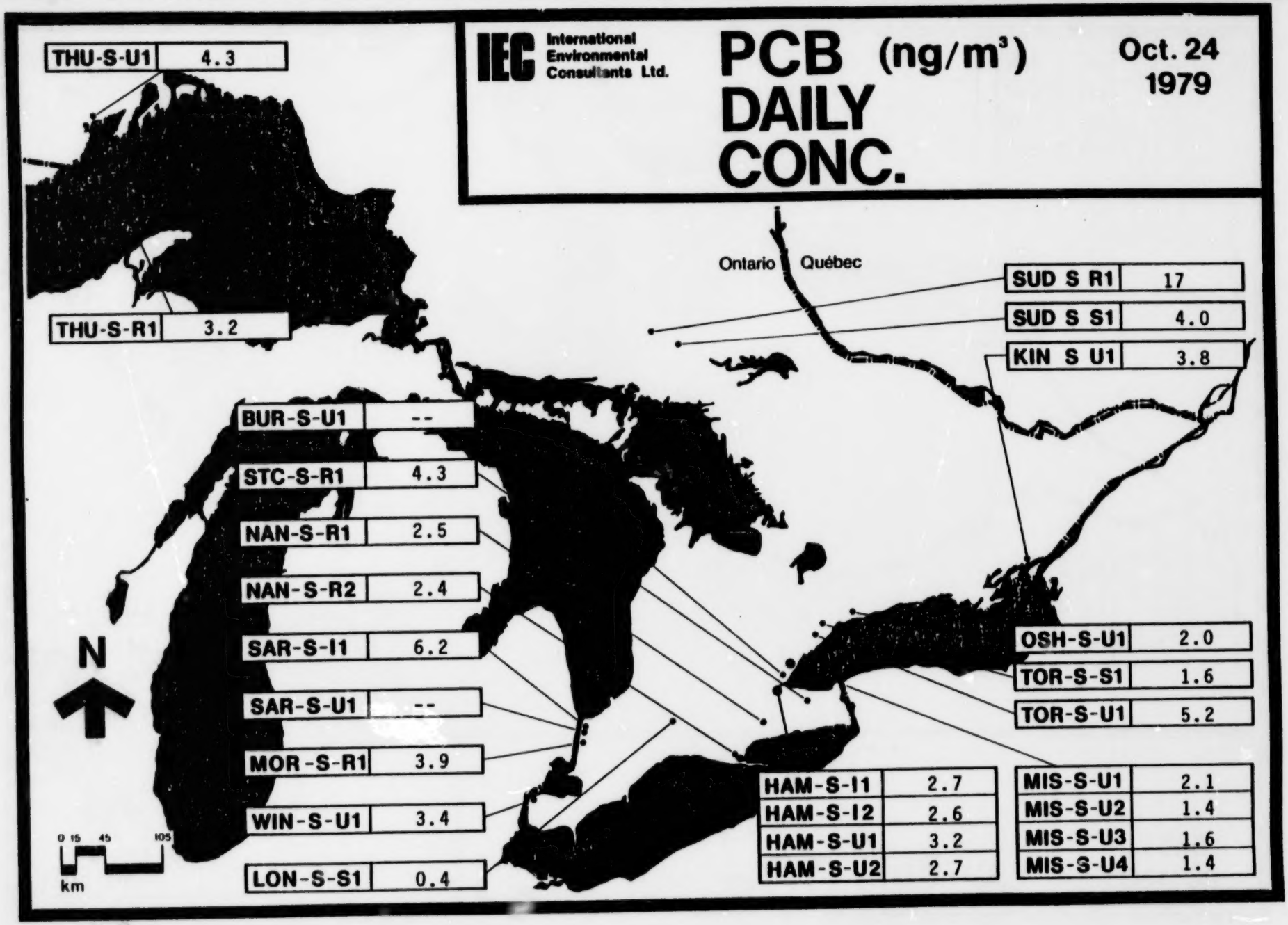
MIS-S-U4 3.7
N
0 15 45 105
km


IEC International Environmental Consultants Ltd.
PCB (ng/m³) DAILY CONC.
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Ontario
Québec
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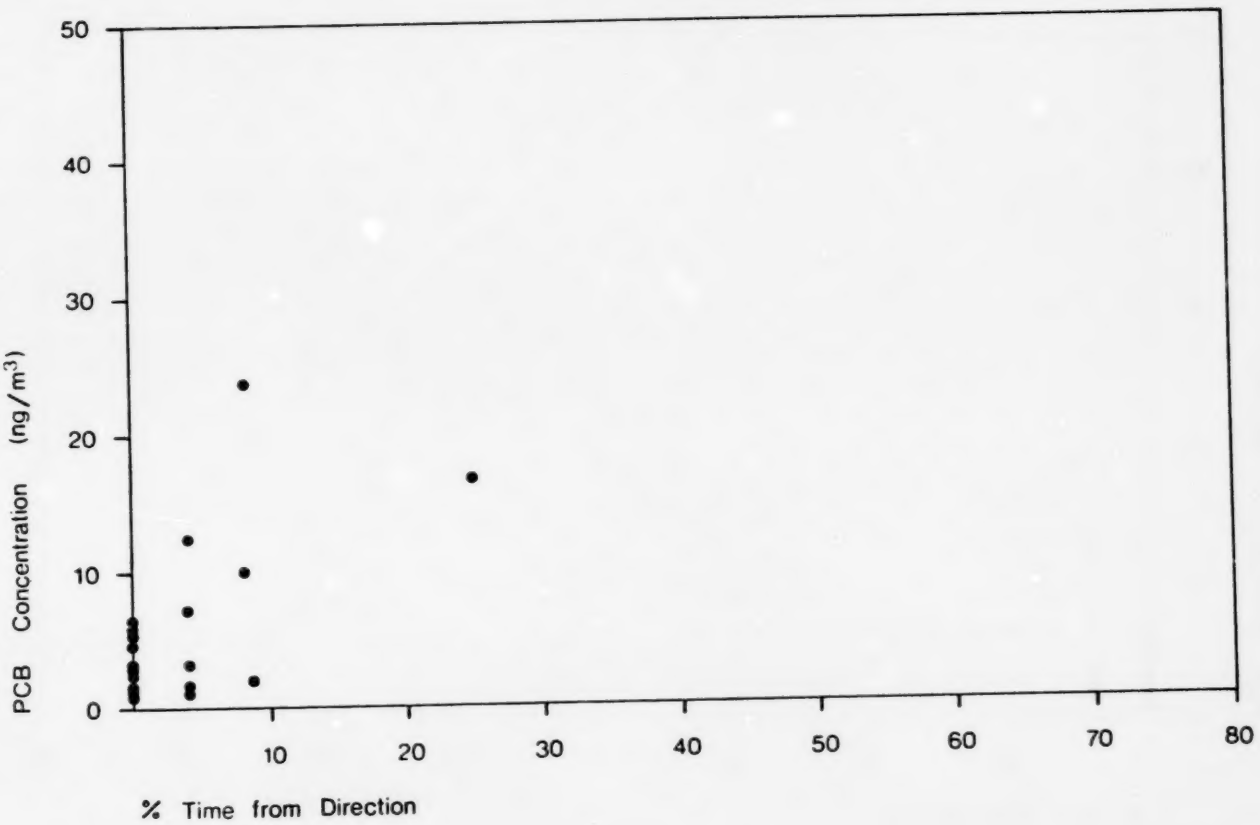
THU-S-R1 3.2
BUR-S-U1 --
STC-S-R1 4.3
NAN-S-R1 2.5
NAN-S-R2 2.4
SAR-S-I1 6.2
SAR-S-U1 --
MOR-S-R1 3.9
WIN-S-U1 3.4
LON-S-S1 0.4
SUD S R1 17
SUD S S1 4.0
KIN S U1 3.8
OSH-S-U1 2.0
TOR-S-S1 1.6
TOR-S-U1 5.2
HAM-S-I1 2.7
HAM-S-I2 2.6
HAM-S-U1 3.2
HAM-S-U2 2.7
MIS-S-U1 2.1
MIS-S-U2 1.4
MIS-S-U3 1.6
MIS-S-U4 1.4
N
0 15 45 105
km

APPENDIX 5

PLOTS OF SIGNIFICANT CORRELATIONS

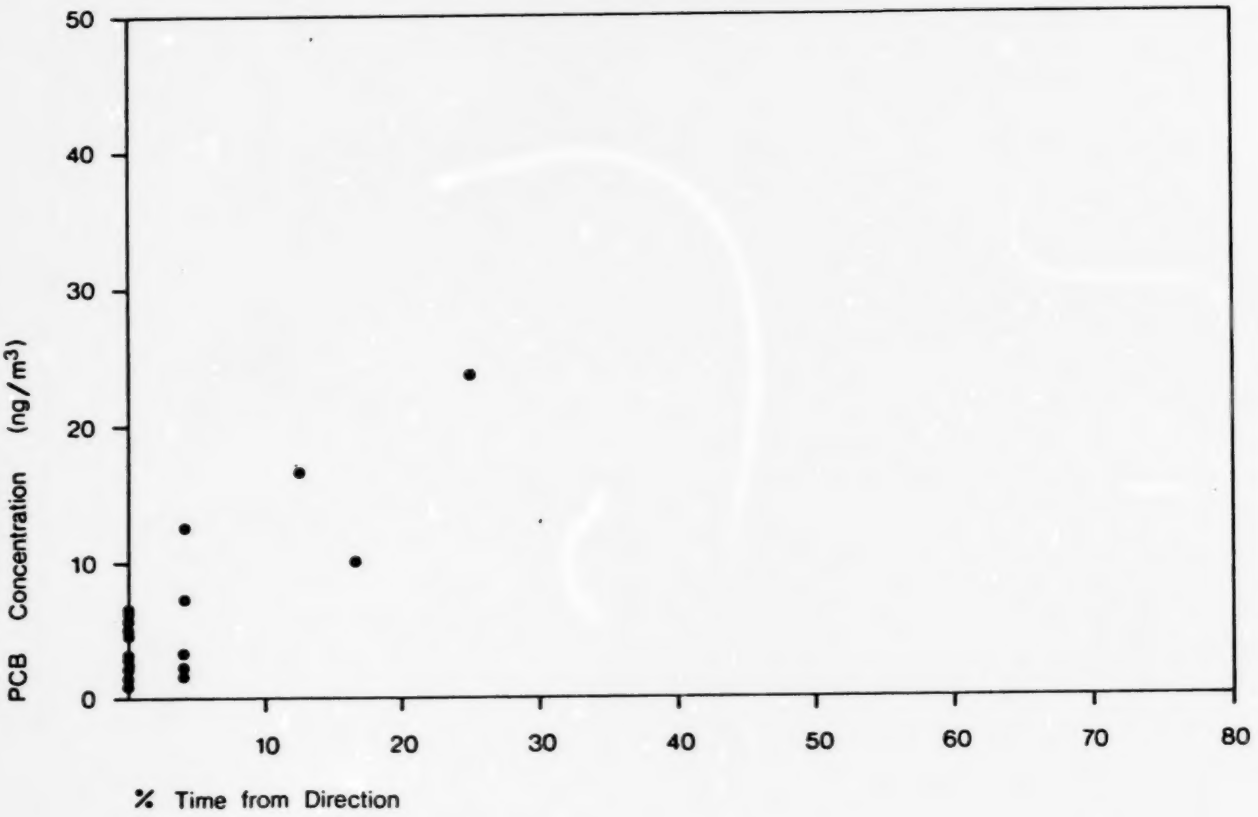
PCB Concentration vs Wind Direction Class

Station **BUR-S-U1**
Direction **W**



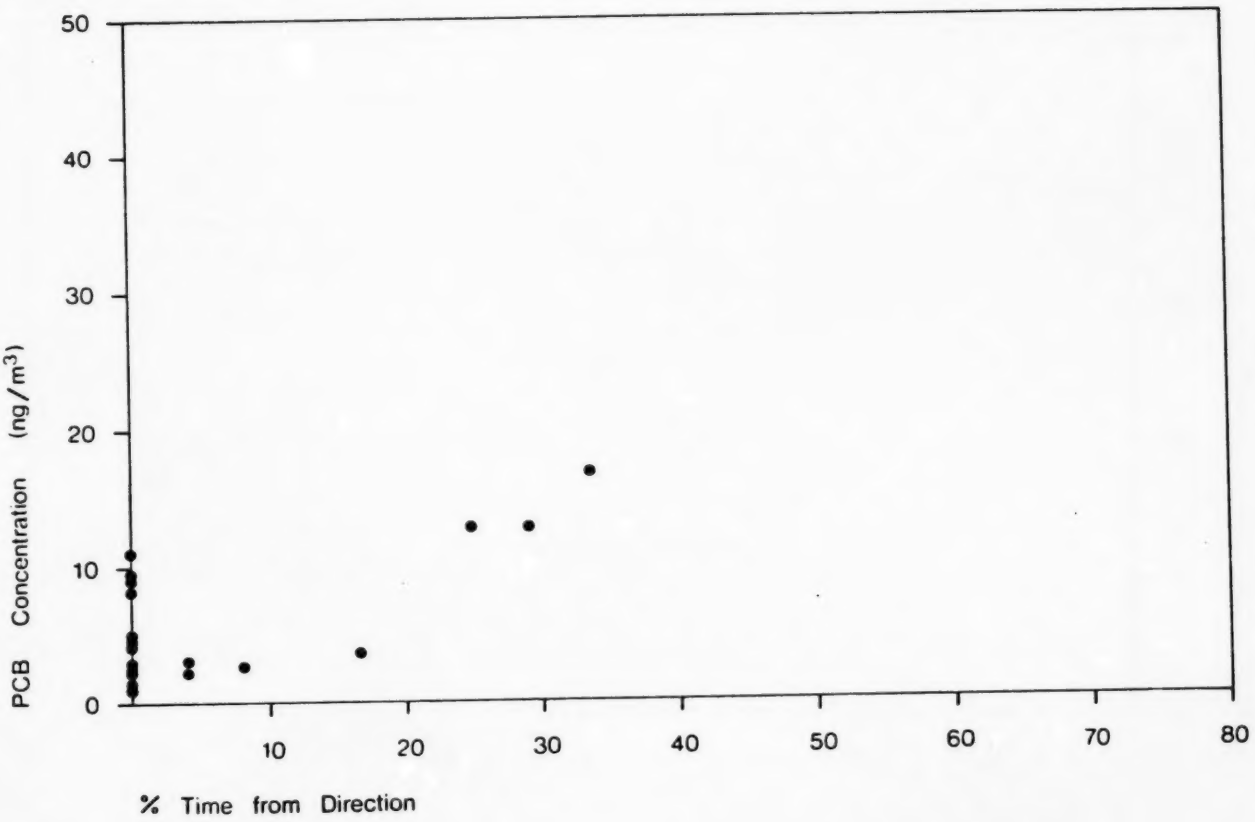
PCB Concentration vs Wind Direction Class

Station BUR-S-U1
Direction WSW



PCB Concentration vs Wind Direction Class

Station **HAM-S-12**
Direction **N**



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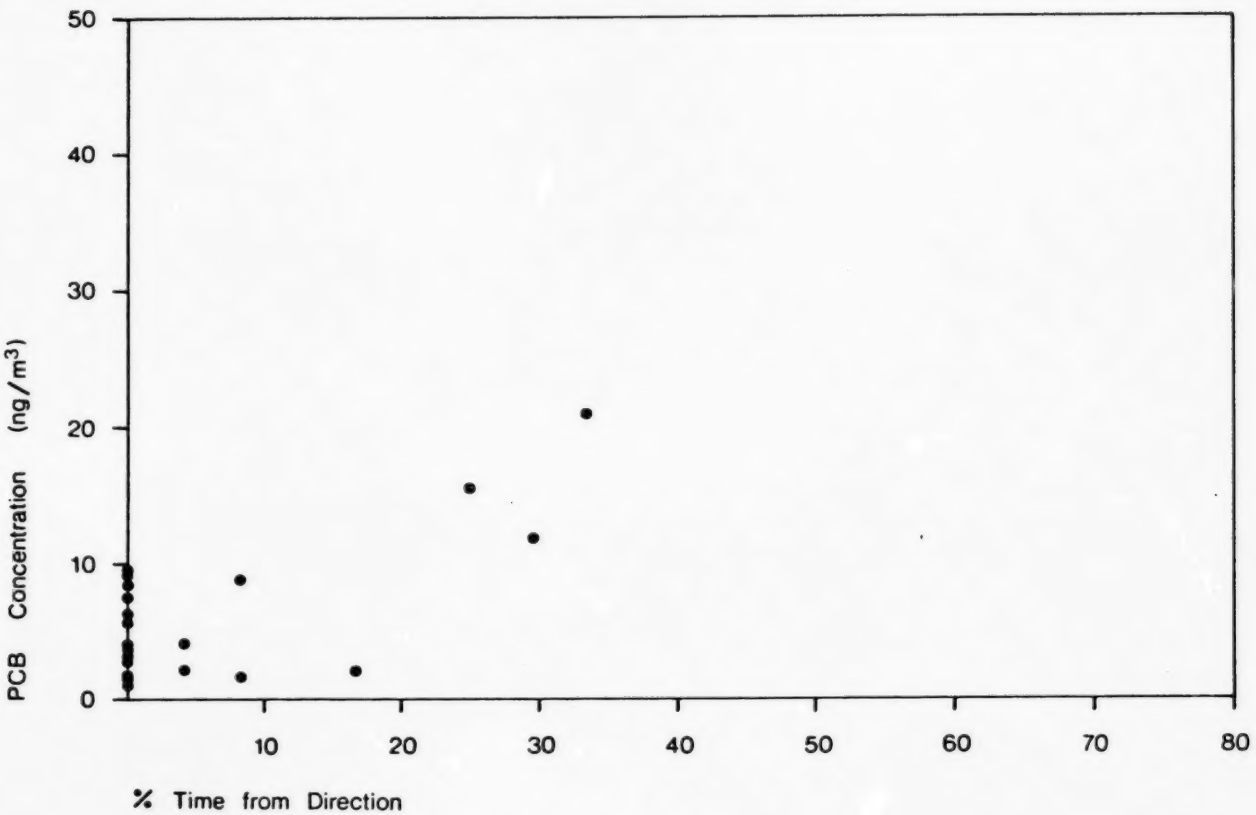
PCB Concentration vs Wind Direction Class

Station HAM-S-U1
Direction N



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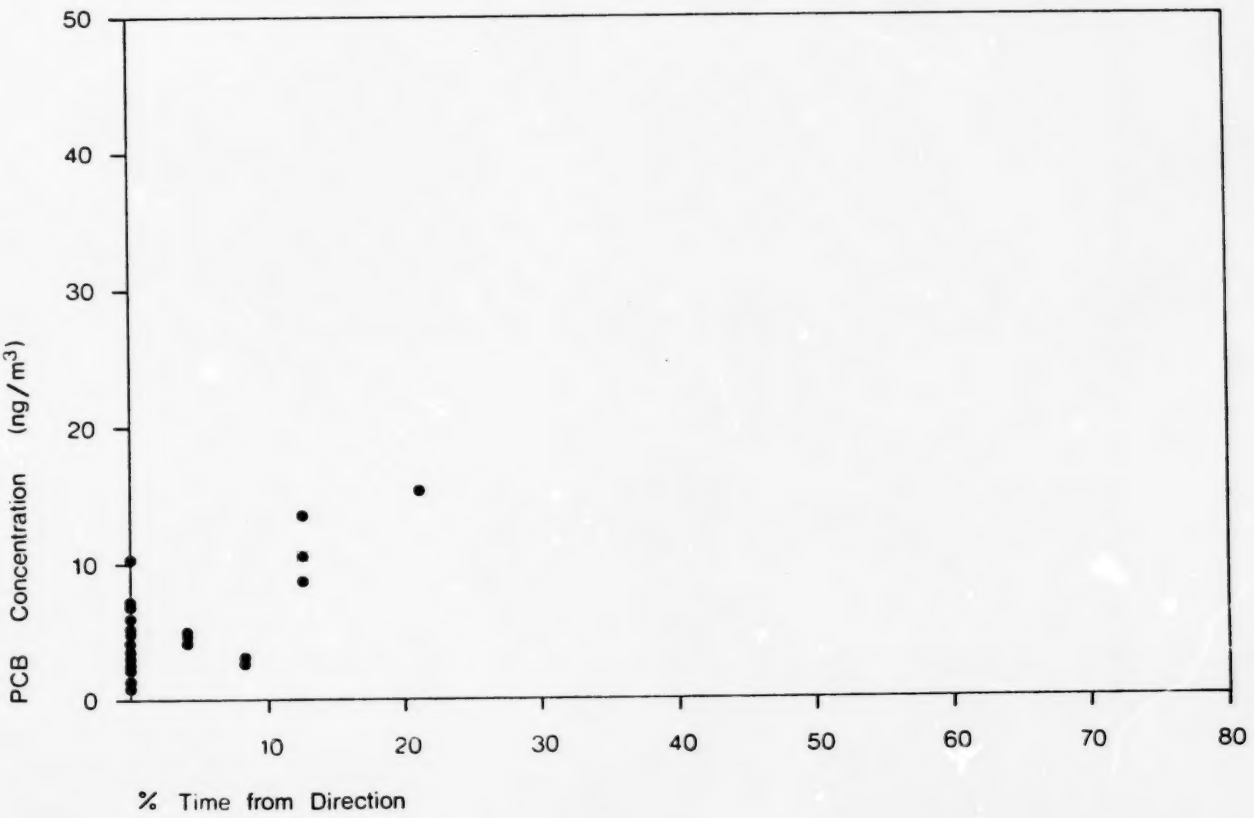
PCB Concentration vs Wind Direction Class

Station **MIS-S-U1**
Direction **SSW**

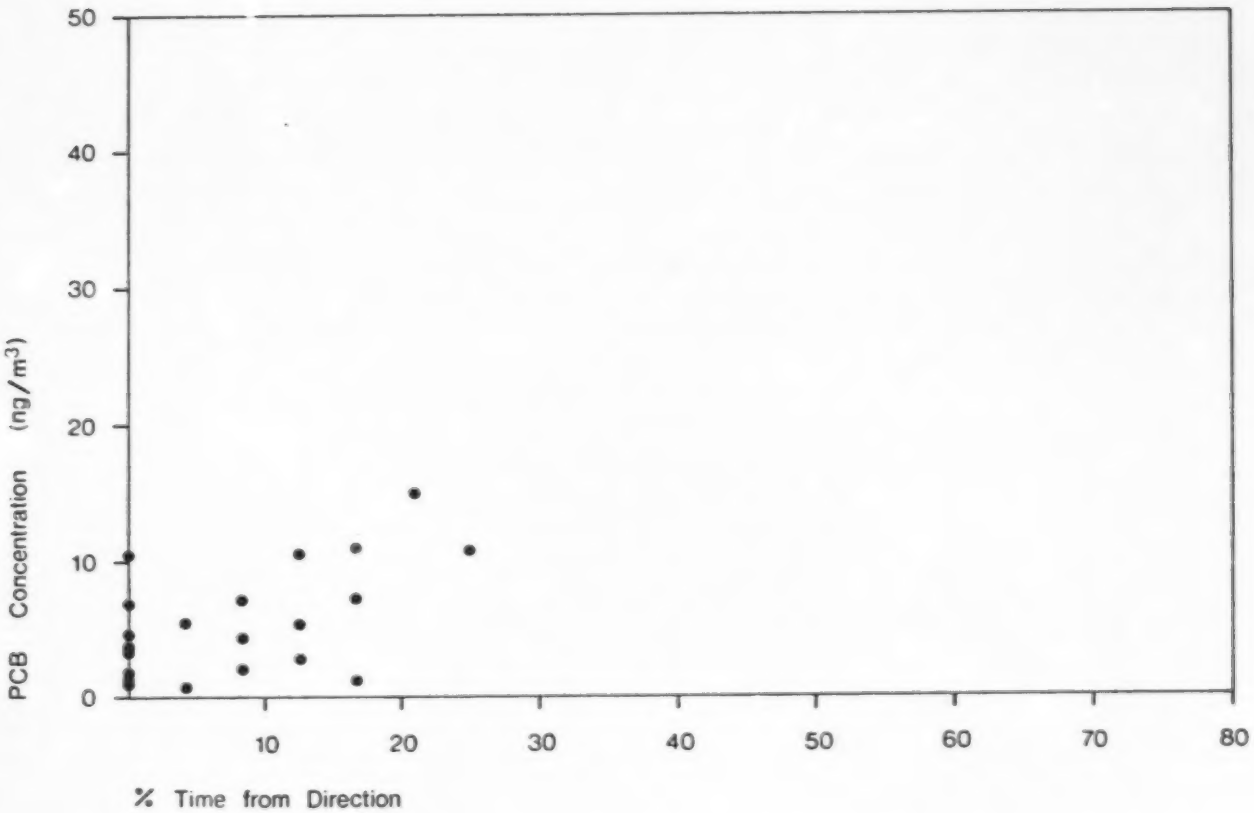


International Environmental Consultants Ltd

Project No. 2098.1

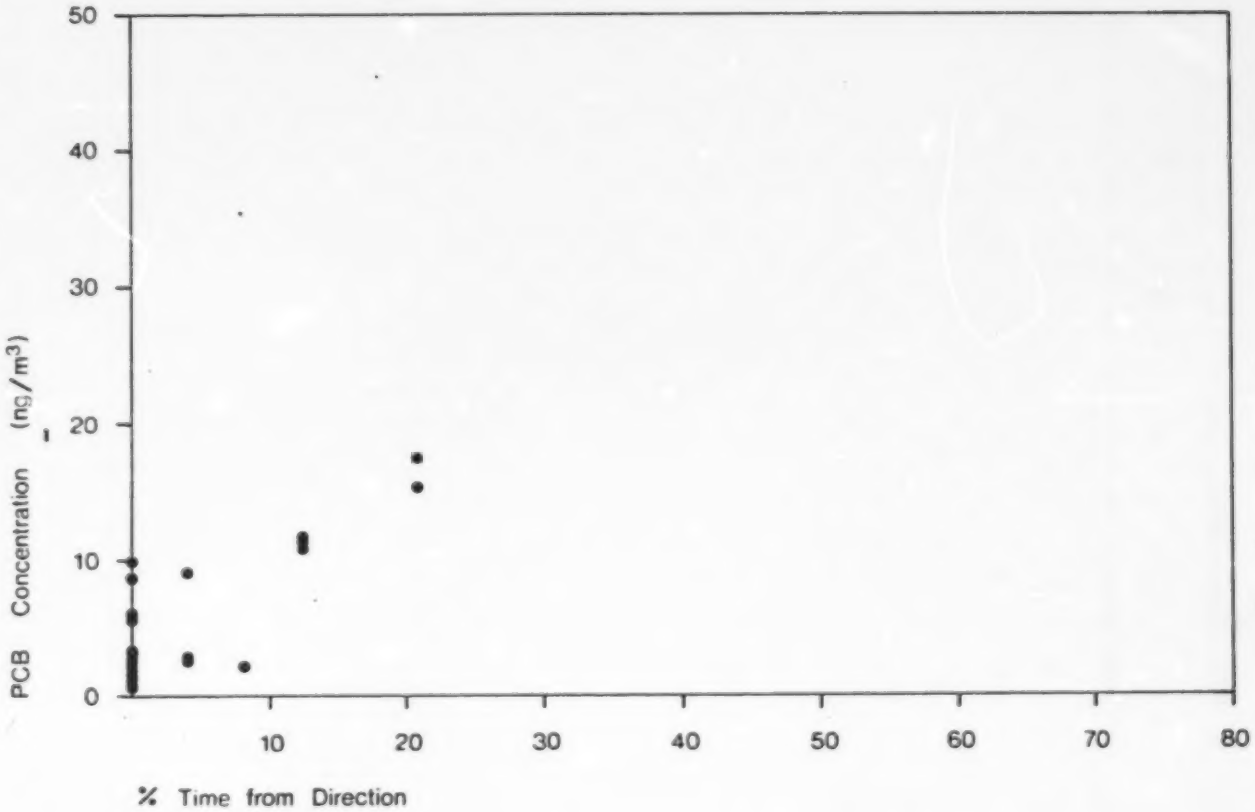
PCB Concentration vs Wind Direction Class

Station **MIS-S-U2**
Direction **S**



PCB Concentration vs Wind Direction Class

Station **MIS-S-U3**
Direction **SSW**

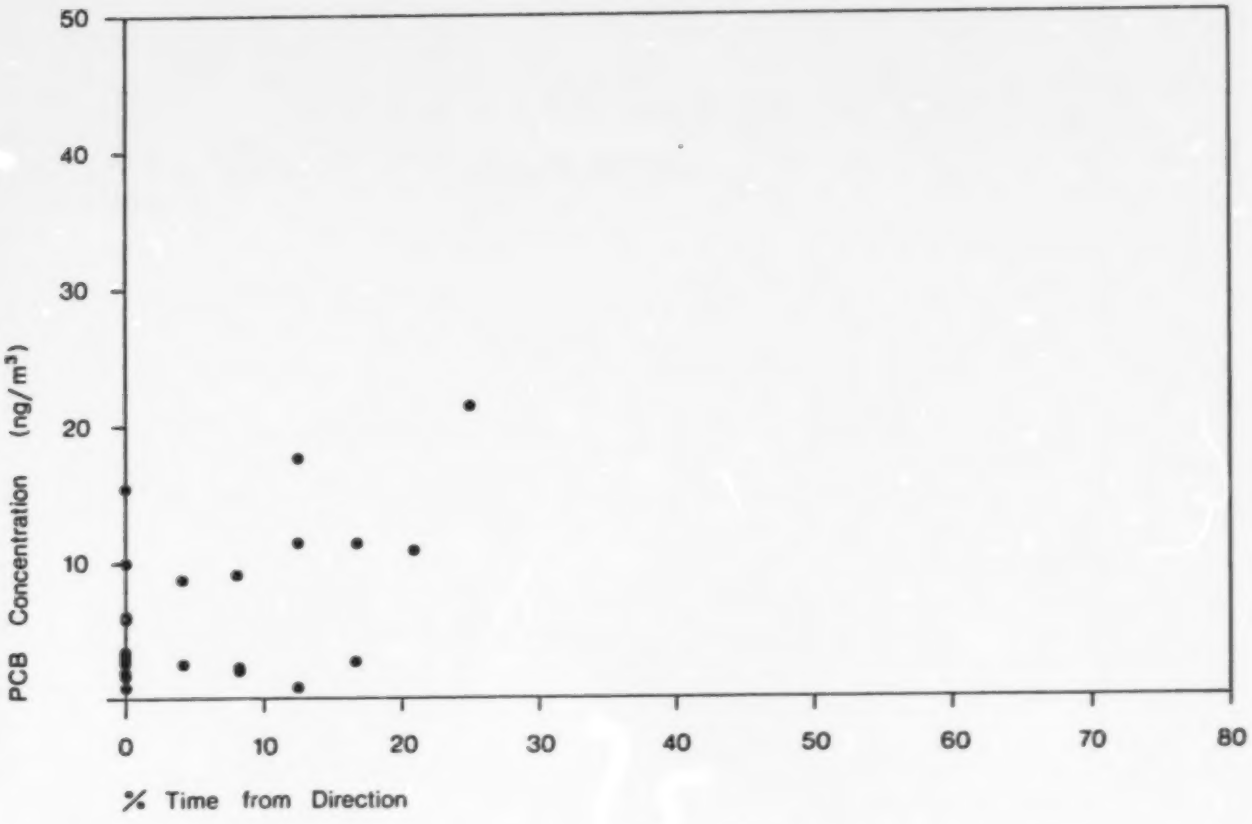


International Environmental Consultants Ltd

Project No. 2098.1

PCB Concentration vs Wind Direction Class

Station **MIS-S-U3**
Direction **S**



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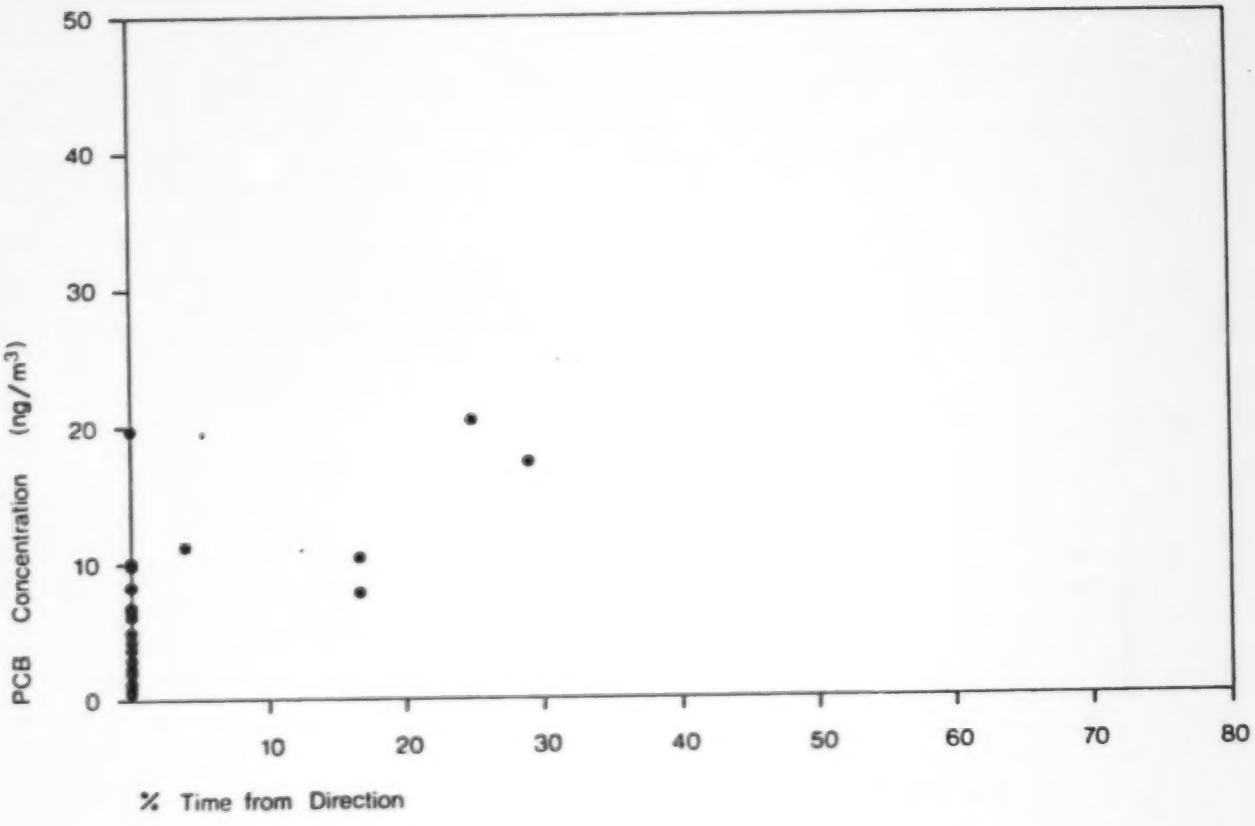
PCB Concentration vs Wind Direction Class

Station **SAR-S-I1**
Direction **NNW**

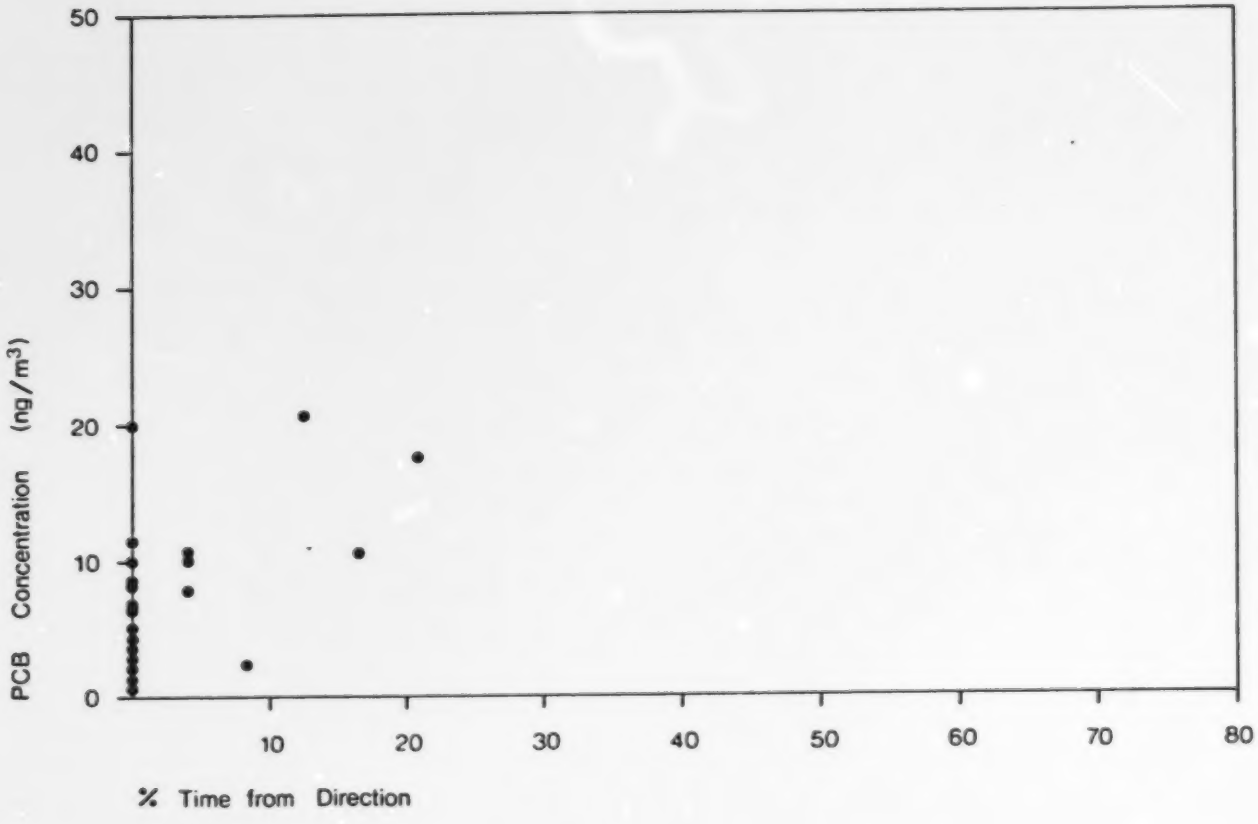


International Environmental Consultants Ltd

Project No. 2098.1

PCB Concentration vs Wind Direction Class

Station **SAR-S-I1**
Direction **NW**



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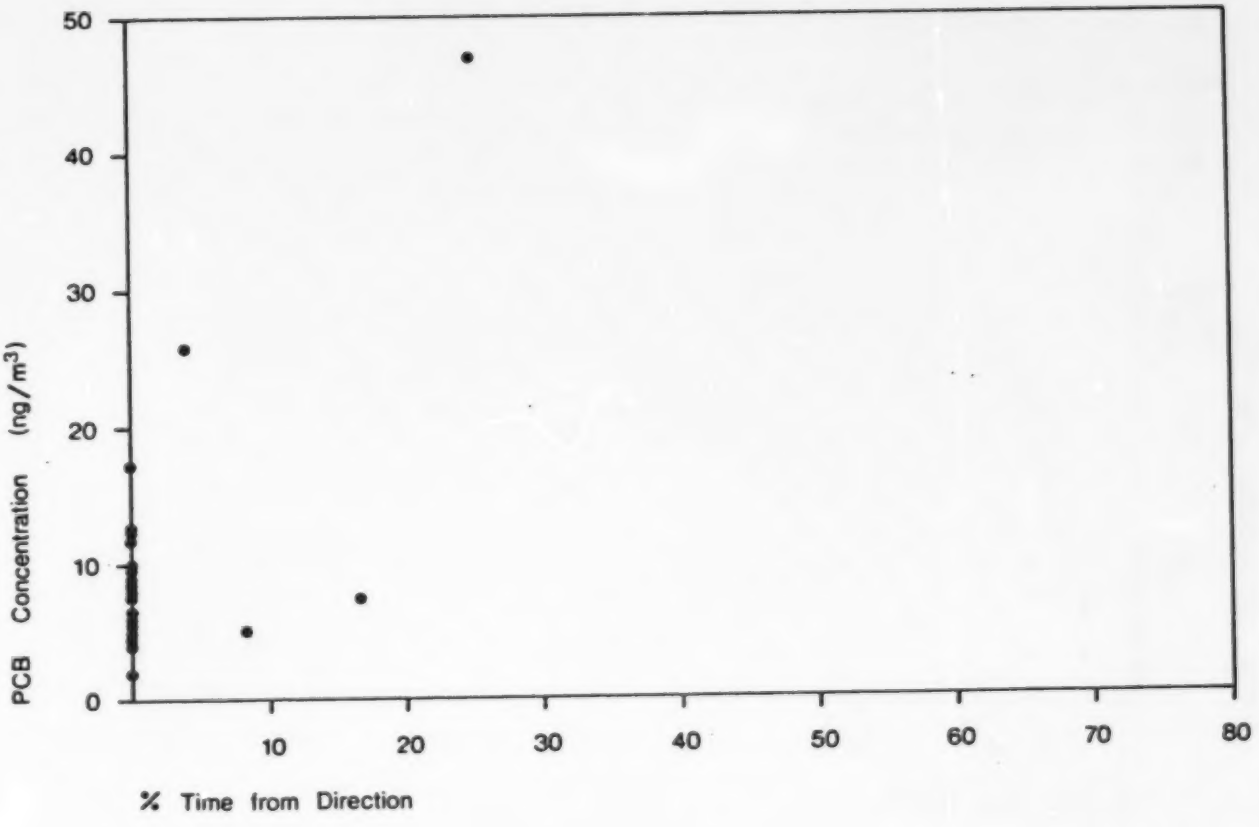
Project No. 2098.1

PCB Concentration vs Wind Direction Class

Station **SAR-S-U1**
Direction **NNW**



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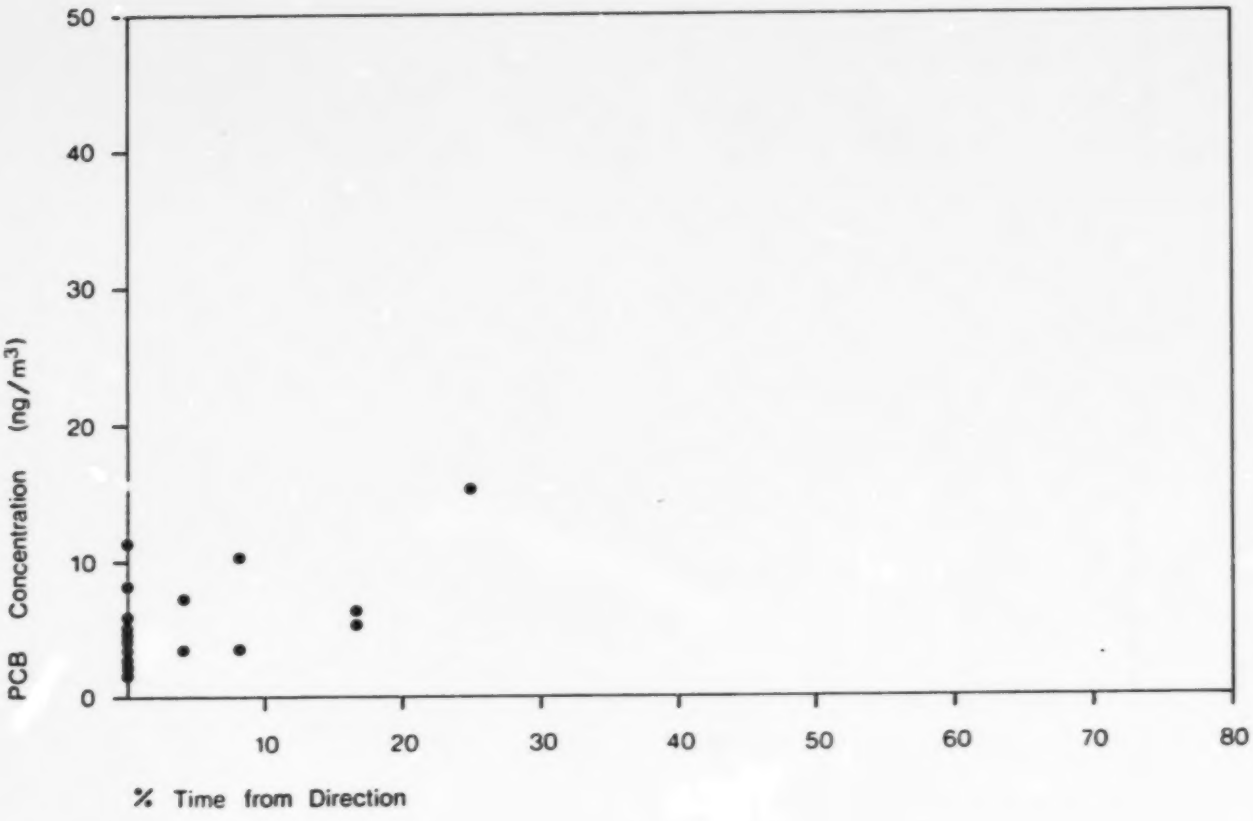
Project No. 2098.1

PCB Concentration vs Wind Direction Class

Station **TOR-S-S1**
Direction **N**

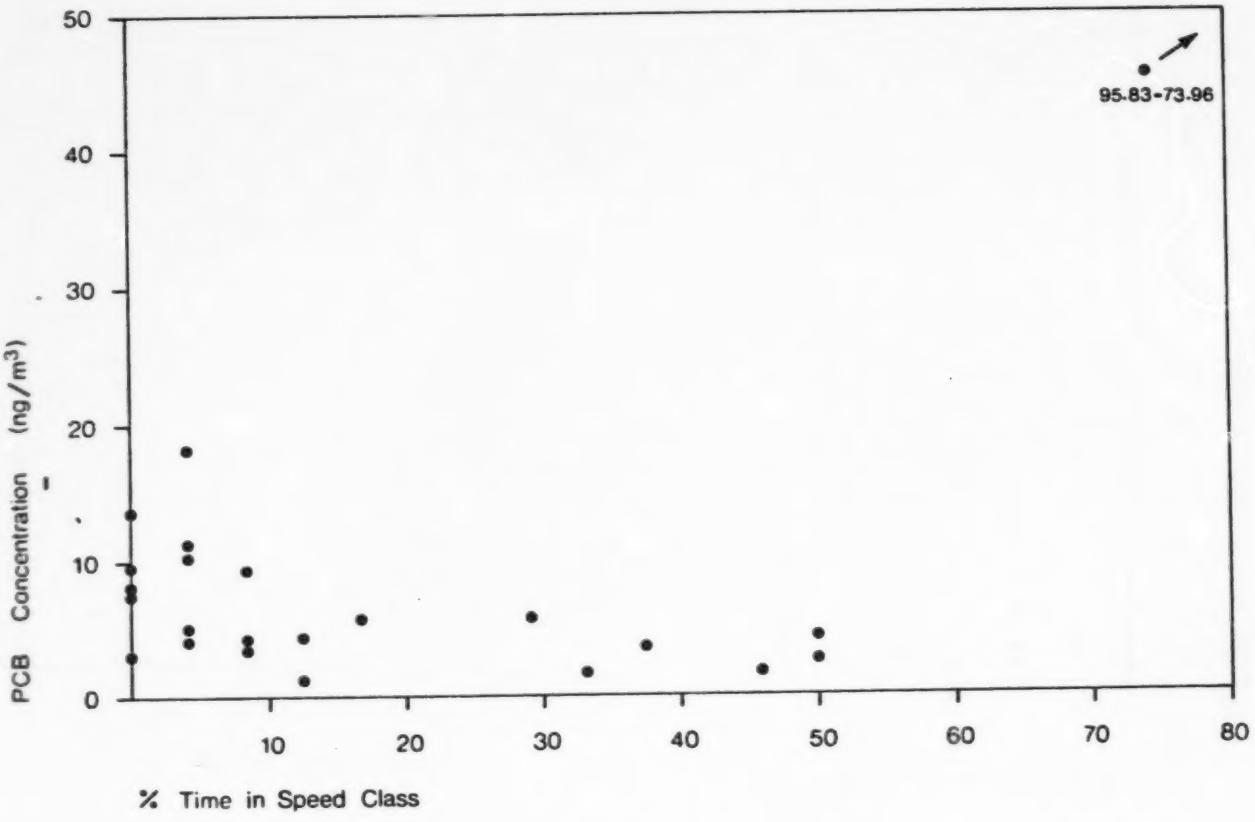


IEC International Environmental Consultants Ltd

Project No. 2098.1

PCB Concentration vs Wind Speed Class

Station **HAM-S-U2**
Speed Class **>20 km/hr**

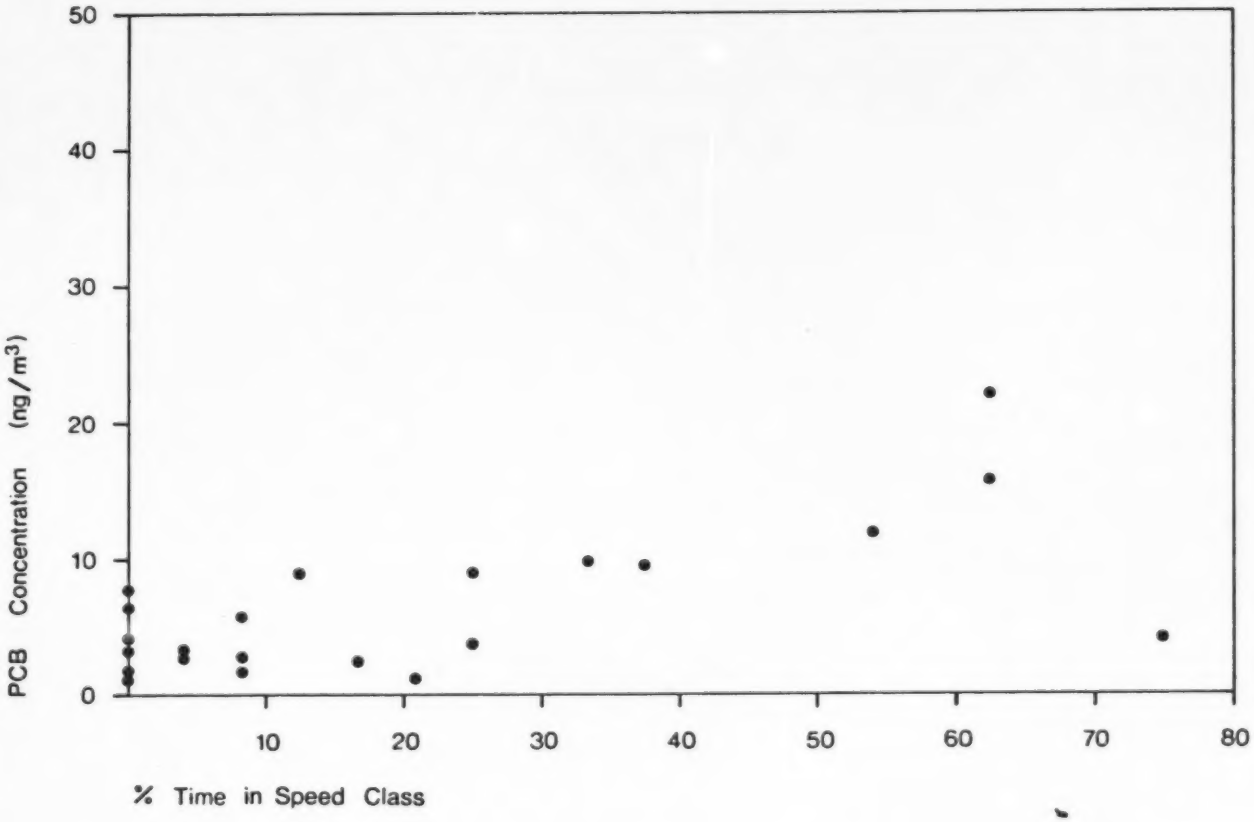


International Environmental Consultants Ltd
Vancouver/Calgary/Toronto/Montreal

Project No. 2098.1

PCB Concentration vs Wind Speed Class

Station **HAM-S-U1**
Speed Class **0-5 km/hr**

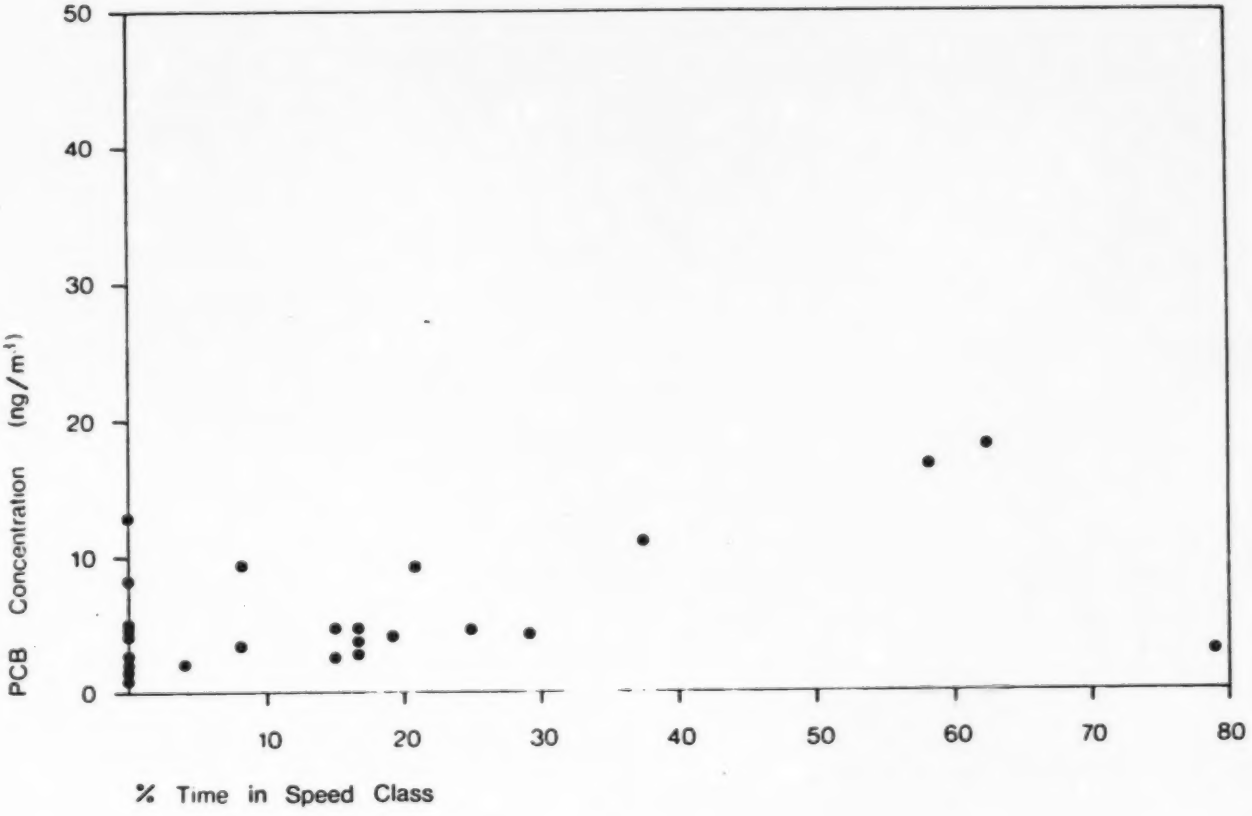


International Environmental Consultants Ltd
Vancouver/Calgary/Toronto/Montreal

Project No. 2098.1

PCB Concentration vs Wind Speed Class

Station **HAM-S-12**
Speed Class **0-5 km/hr**

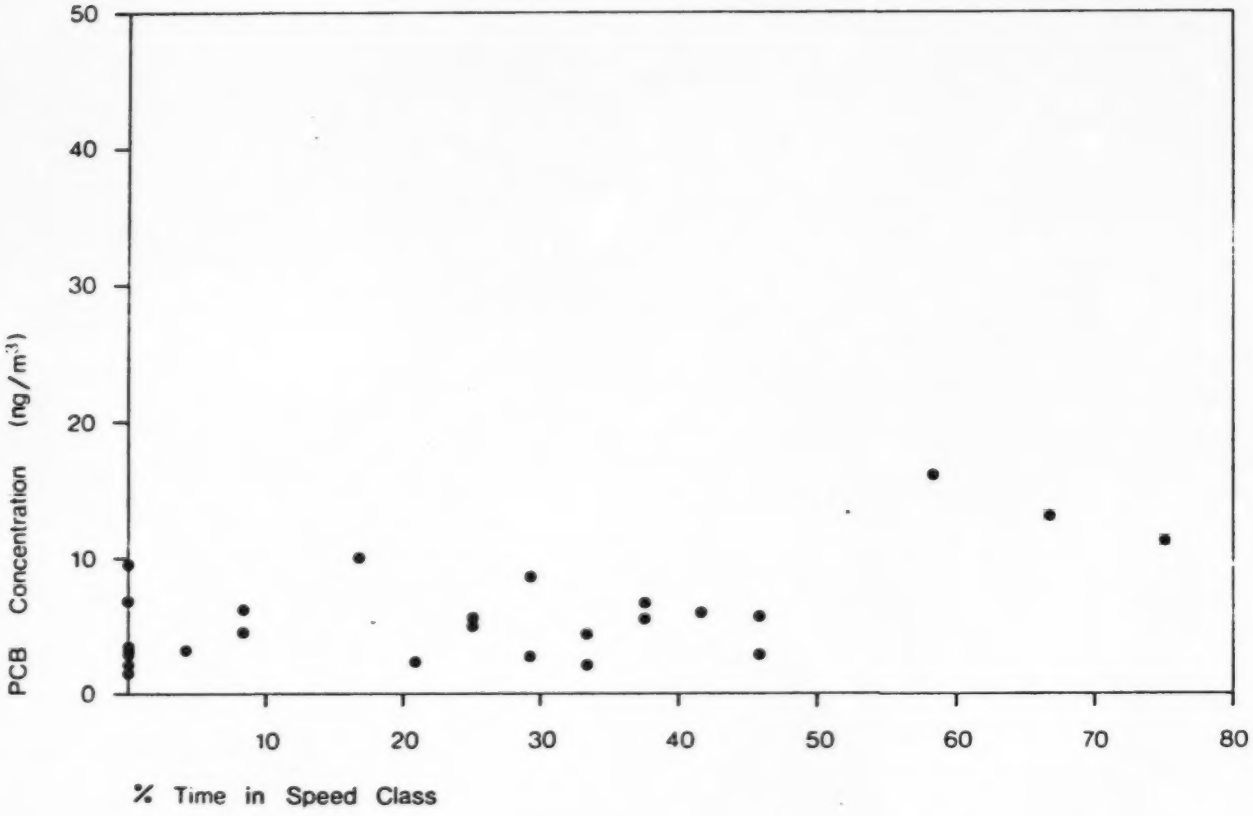


International Environmental Consultants Ltd

Project No. 2098.1

PCB Concentration vs Wind Speed Class

Station **WIN-S-U1**
Speed Class **0-5 km/hr**



POOR

QUALITY

ORIGINAL